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COVER: The USS *Kennedy* underway. Providing health care aboard a modern carrier is the subject of this month's Department Rounds. Story on page 2. Photo by PH2 Walter R. Edwards.

FROM THE SURGEON GENERAL

Physician Utilization of Laboratory and X-ray Tests

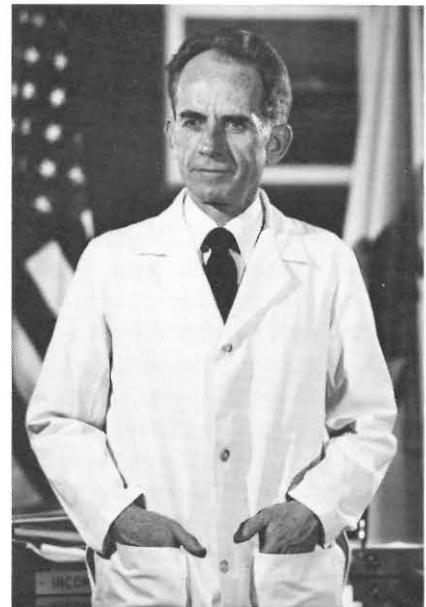
Effective and efficient utilization of health care resources, as well as quality health care, is a primary concern of the Navy Medical Department. Cost containment and quality health care are not incompatible; in fact, they are complementary. Review, analysis, and elimination of nonproductive elements in health care delivery improve the quality of that care.

Hospitals throughout the country are being asked to reduce hospital costs on a voluntary basis. We must do the same and the appropriate use of ancillary services is an area where significant savings can be achieved. In FY79, there were 43 million laboratory tests and 7 million x-rays performed in Navy Medical Department facilities. This represents a 7 percent increase over FY78 and a 28 percent increase since FY75. The number of these tests continues to increase even though we have experienced a reduction in the number of admissions and outpatient visits.

In today's environment of rapidly increasing health care costs, we

must all do our part to keep costs down. A spokesman for the Bureau of Radiological Health estimated that 30 percent of x-ray examinations in the U.S. are not medically necessary. The individual efforts of our medical officers in reducing the number of inappropriate laboratory tests and x-rays will achieve more than any corporate endeavor. I am asking each of you to cooperate in this effort. Ask yourself if you really need that lab test or x-ray to diagnose and treat your patient. What percentage of the routine tests that you order is productive in terms of providing medically useful information? How often do you order repeat tests when they are not really needed? Do you know the cost of the tests that you order? Is your facility reviewing and studying these areas in order to identify inappropriate usage patterns and eliminate non-productive tests and procedures? The savings you make in these areas can be returned to you in the form of more equipment, additional personnel, additional travel for professional meetings, etc.

It is not my intent to limit the use of laboratory, x-ray, or other tests and procedures, but to encourage



you to insure that those tests which you order are appropriate, productive, and clinically justified. Your attention to this very important area will not only reduce costs, but will also improve the quality of care by allowing us to utilize the savings in more productive areas of health care.

W.P. Arentzen
W.P. ARENTZEN
Vice Admiral, Medical Corps
United States Navy

DEPARTMENT ROUNDS

Health Care Management at Sea

Often referred to as the most sophisticated weapons system on Earth, the aircraft carrier is the cornerstone of the Navy's seapower. The USS *John F. Kennedy* (CV67) is a floating city with over 5,000 "citizens," many of whom play a role in maintaining the vessel's elaborate equipment and its requisite computer technology.

Maintaining the health of those citizens is the job of the *Kennedy*'s medical department. This department has the capabilities of a small hospital and is manned by a senior medical officer (flight surgeon), two air wing flight surgeons, a general surgeon, a Medical Service Corps officer, a physician's assistant, and approximately 36 chiefs and corpsmen. Their domain is an inpatient ward with a 50-bed capacity, an operating room, treatment room, lab, pharmacy, x-ray, aviation medicine unit, preventive medicine unit, administrative and supply support units, and various battle dressing stations located throughout the ship. Their responsibilities include mass personnel casualty management, preventive industrial medicine, and general health maintenance of the crew.

The possibility of mass personnel casualties aboard an aircraft carrier like the *Kennedy* is a constant threat not only in wartime but also during peacetime operations. Although the crew is highly trained and safety oriented, fast-paced

flight operations involve many potentially dangerous situations. Fire is a very prominent threat to which the carrier medical team must be ready to respond. If mass casualties occur, personnel must man battle dressing stations and activate triage teams. The initial treatment, classification, and subsequent movement of critically injured personnel through the maze of passageways and hatches to the operating table or ward have to be well coordinated. The prompt return of personnel to their duties is vital to the operation of the ship. And for those crewmen who need treatment beyond the capabilities or

capacity of the ship's medical department, Medivac must be arranged. Incidentally, it is not uncommon for the *Kennedy* to receive incoming patients from ships in company.

The two preventive medicine technicians aboard the vessel have numerous responsibilities relating to environmental and industrial health. The shipboard environment lends itself to the occurrence and proliferation of sanitation problems and communicable diseases. A water or food-borne sickness, a disease epidemic, or pest infestation could seriously reduce the crew's effectiveness. Berthing compartments, food storage preparation areas, and internal systems of water supply, sewage treatment, and ventilation are examples of areas that must be closely monitored. Also important is proper immunization of the crew, especially for diseases endemic to the region of the world being visited.

Aircraft carriers like the *Kennedy* have not been exempt from the high visibility of industrial hygiene programs in the Navy. Programs in traditional areas such as hearing conservation, heat stress, and asbestos exposure have been joined by health monitoring responsibilities associated with toxic and/or carcinogenic substances unique to the shipboard-aircraft environment. Beryllium, a chemical element used in aircraft brake systems, cellulube,



HM2 James L. Bailey treats a patient during sick call.

an hydraulic fluid for deck-edge elevators, and special paints are but a few examples of many such substances and chemicals commonly encountered. The medical department is active not only in the treatment of exposure and subsequent monitoring of exposed individuals, but also, more importantly, in educating the crew to the significance of exposure prevention.

General health maintenance aboard the *Kennedy* is handled very much like it is at a shore-based facility. There is a daily sick call and an emergency response team is poised for any occasion requiring immediate lifesaving treatment. Complete physical exams and eye screens are performed. Medical officers routinely handle counseling and treatment for drug, alcohol, or psychiatric related problems. The surgeon treats an array of illnesses and injuries related to his specialty and performs both major and minor surgical procedures as required. The ward corpsmen provide around-the-clock inpatient care. They also handle CHAMPUS counseling along with other information related to dependent health care. The corpsmen educate the crew in "buddy" first aid procedures, alert personnel to the medical precautions of visiting foreign countries, administer a weight control program, and encourage daily physical exercise.

The medical administrative officer (MAO) aboard the *Kennedy*



HM1 James R. Easton, Preventive Medicine Technician, inspects food service facilities aboard the Kennedy.

shares these responsibilities. Even though resources are limited and obligation substantial, he has many opportunities to apply genuine management theories and practices. He is primary assistant to the senior medical officer (SMO) for overall administration of the medical department and "H" Division officer. Versatility is essential in administering the many facets of shipboard health care. Fiscal/supply management, patient services, health benefits counseling, and decent affairs are examples of the MAO's traditional responsibilities. As "H" Division officer, he functions as a leader, trainer, and counselor to the hospital corpsmen. His level of effectiveness directly influences the division's morale and overall per-

formance. Perhaps there is no better arena for learning and exercising true leadership skills.

The challenges for all medical personnel aboard a carrier like the *Kennedy* are unsurpassed and never-ending. The long hours at sea are arduous and the family separation is an emotional strain. However, there are many rewards. Serving with the highly professional officers and men of the line Navy (surface warfare and aviation communities) is an enlightening experience. One gains both a lasting appreciation of their health needs and a perception of what Navy health care providers can contribute in this unique operational setting.

—Story by LT Jerry B. Adkison, MSC, USN. Photos by PHAN N. Barger, USN

Domestic Violence: The Alcohol Relationship

LT Serge R. Doucette, Jr., MSC, USNR
CDR Robert D. McCullah, MSC, USN

In 1977, Hindman(1) published an article "Child Abuse and Neglect: the Alcohol Connection." The connection referred to the fact that alcohol misuse has frequently been cited as a factor in cases of child abuse and neglect, but little research had been done directly on the relationship between the two.

Based upon many studies and observations presented in the domestic violence literature, we have elected to expand the position presented by Hindman to include the relationship of spouse abuse/neglect to alcohol abuse. We have also chosen to provide additional focus in directing attention to the presence of abuse and neglect in reported alcohol incidents. However, our view of alcohol abuse and domestic violence recognizes that the impact of alcohol abuse is not confined to the family. Alcohol abuse affects friends, associates, strangers, and the community at large.

Spouse and child abuse/neglect are to be considered synonymous with domestic violence for the purposes of this article.

A relationship between alcohol and domestic violence is repeatedly postulated in alcohol, child and spouse abuse/neglect literature.

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Rarely, however, is this relationship specifically delineated.

A relationship seems evident when incident reports filed by agencies are reviewed. Such reporting has indicated that alcohol usage is present in domestic violence incidents and domestic violence is present in alcohol incidents. Many such investigations have resulted in controversy and contradictions.

Van Stolk(2) reported that alcoholism is not a major problem related to child abuse. Helfer and Kempe's earlier 1968 text(3) appeared to be supportive of this position. However, in a later book (1976), Helfer and Kempe(4) state, "The contribution made by alcoholism and drug abuse to the problems of violence and maltreatment of children cannot be doubted. On the other hand, we have been impressed by the amount of child abuse we have seen in families who are total abstainers, because of firm religious beliefs or other convictions." Further review of the literature reveals that it is not a question of whether a relationship exists, but rather does the relationship reach statistical and interpretive significance.

In our review, we found a minimum of cooperative, investigative efforts. Alcohol abuse and family violence intervention efforts seem to have developed an essentially independent awareness and treatment expertise. Much independent data is available, but few present

correlational or functional data. In fact, it has appeared to the authors that in many instances, the alcohol relationship has been actively avoided.

As used in this article, domestic violence (abuse/neglect) and alcohol abuse are viewed in a particular context. *Abuse* is considered to be direct physical injury, trauma, and/or emotional harm inflicted by other than accident. *Neglect* is an act of omission or commission comprising inadequate and/or improper care which results or could reasonably result in injury, trauma, or emotional harm. In both these definitions, the intent of the abuser/neglector (maltreator) is not an issue. Alcohol use, misuse, abuse, and alcoholism have been defined in many ways. We have elected to consider alcohol abuse as a composite descriptive term and it is viewed in the context of the following drug abuse definition: the use of any psychoactive substance to include alcohol and tobacco, in such a manner as to adversely affect some aspect of the user's life, and the lives of others, or the community at large.

Our perspective is to evaluate domestic violence literature for alcohol abuse referents and alcohol literature for domestic violence referents, with emphasis on the significance of the interrelationship.

Alcohol Literature Review

Alcohol literature tends to present data relating to violence in general rather than demonstrating a specific relationship to child or spouse maltreatment.

Alcohol and Violence. FBI research(5) indicates that a person is more likely to be killed by a relative (20 percent) or by friends and acquaintances (40 percent) while engaged in an argument. In 1977, there were an estimated 522,510 aggravated assaults in the nation.

This represents a six percent increase from 1976 and a 24 percent increase since 1973. In the same year, there was an estimated total of 63,020 forcible rapes, representing an 11 percent increase over 1976 and a 23 percent increase over 1973. The FBI also reports that more law enforcement officers were killed (25 percent) or assaulted (32 percent), while responding to disturbance calls (family quarrels, bar fights, etc.) than under any other circumstance.

Gerson(6) reports that of 1,790 alcohol-related acts of violence reported to regional police in Ontario, Canada, 1,301 were marital or other common assaults. Ninety percent of the marital assaults occurred in a private residence, usually after the offender or both spouses had been drinking. A survey by Gelles, Straus, and Steinmetz(7) reported that the rate of child abuse is 129 percent higher in families where there is also spouse abuse.

Dr. Jerry Flanzer, (8) director of the Mid-America Institute on Violence in Families at the University of Arkansas, reports that 70 percent of all family violence is related to alcohol consumption. In 1976, Orford, *et al*(9) presented questionnaires to wives of alcoholics and found that 72 percent had been threatened, 45 percent beaten, and 49 percent had witnessed the husband breaking up furniture, windows, and china.

Nicol, *et al*(10) have reported that men incarcerated for crimes tend to have more severe drinking problems than men in the general population.

In a study of Philadelphia homicides, Wolfgang(11) found that alcohol was present in either the victim, the offender, or both in almost two-thirds of the cases studied. Similar studies found alcohol present in from 30 to 70 percent of all criminal homicides. Shupe(12)

analyzed felony offenders' urine to determine the presence of alcohol and found that 83 percent of all those charged with murder had consumed alcohol, 67 percent having blood alcohol levels greater than 0.10 percent.

Alcohol and Sex Offenses. McCaldon(13) studied convicted rapists and reported 63 percent had been drinking prior to the rape. Selling(14) found in a study of 100 male sex offenders that 35 had been drinking when they committed the offense and that eight were long-term alcoholics. Rada, *et al*(15) reported in a study of child molesters and rapists that 42 and 44 percent, respectively, were drinking at the time of the offense. Thirty-eight percent of the rapists and 42 percent of the child molesters were rated "alcoholic" (a score of seven or more on the Michigan Alcoholism Screening Test (MAST)).

In another study of sex offenders, Rada(16) found that 49 percent were drinking at the time of the offense, and the alcoholism rate (as measured by the MAST) was 52 percent.

Johnson, *et al*(17) investigated the role of alcohol in 217 rapes reported to the Winnipeg, Canada Police Department during the 10-year period 1966-1975. Alcohol was reported to be present in 72.4 percent of the rape incidents. Alcohol was also noted to increase the likelihood of force being used. Of the 191 cases in which data on injury were available, 113 resulted in injury to the victim. The data provided evidence that the situation of drinking may facilitate rape; 83 percent of the rapes classified as "spontaneous" involved alcohol, while 55 percent of those characterized as "planned" were preceded by drinking.

Investigations pertaining to incest have revealed that the incestuous father is often intoxicated at the

time of the offense. In the 45 cases of father-daughter incest studied by Virkkunen,(18) 22 involved alcoholic offenders. Meiselman(19) reports: "It is difficult to give exact figures on the percentage of incestuous fathers who are alcoholics or problem drinkers, because these terms are seldom defined in research reports. Only 15 percent of Lukianowicz' (1972) sample were diagnosed as alcoholics, whereas 73 percent of the fathers studied by Kaufman, Peck, and Tagiuri (1954) were thus labeled. It is more typical to read that somewhere between 20 and 50 percent of a sample of fathers are alcoholic."

A report on alcoholism in the Soviet Union, presented to the Academy of Sciences of Siberia by the economist Stanislav Strumilin, (20) reported that alcohol is involved in 59 percent of burglaries, 78 percent of rapes, 69 percent of cases of physical violence, and 58 percent of traffic mortality.

Domestic Violence Literature Review

International. In 1967, a study by Nau(21) of 105 child abusers in Germany revealed that 52 percent of the men and 42 percent of the women were alcoholics. The study also revealed that 44 percent of the men, and 23 percent of the women were under the influence of alcohol at the time of their abusive behavior. Mainard, *et al*(22) found alcoholism in 65 percent of the parents of 32 French children hospitalized following parental brutality. Another aspect of the same study indicated that parental alcoholism was found in 90 percent of all cases of child abuse recorded in juvenile court.

In a British text, *Violence and the Family*, (23) several authors provide substantiation of the significance of alcohol in relationship to domestic

violence. In the chapter entitled, "Battered Wives," J.J. Gayford states, "The survey (of 100 battered wives) shows pointers of correlation between alcoholism and wife battering. As many as 53 percent of women claimed that their husband or cohabitee was drunk at least once a week, and a further 22 percent claimed that drunkenness occurred at least monthly. For 44.1 percent of women, violence only occurred when their man was under the influence of alcohol. Some women could even predict the events, with tension rising, perhaps with a row over a trivial matter, followed by the husband's drinking heavily to the point of intoxication, and then violence erupted."

National. In a 1977 report, the National Center on Child Abuse and Neglect (NCCAN) states: "Several factors consistently appear to be present in families reported for child maltreatment; broken family, insufficient income, social isolation, and alcohol dependence." (24) Furthermore, NCCAN's abuse/neglect reports reveal alcohol dependence in 11.8 percent of established child abuse cases and 13.3 percent of established child neglect cases. Prior involvement with law enforcement agencies has also been found to be characteristic of families involved with child abuse and neglect.

It is interesting to note at this time that other factors presented as precursors to maltreatment (i.e., social isolation, broken family, etc.) are not elaborated upon as to their possible origin. For example, NCCAN reports that "broken families" are reported in 51.5 percent of established child abuse/neglect incidents. Further investigation of the origin of the "broken family" might reveal that alcohol abuse or alcoholism was a significant factor precipitating the factors resulting in the "broken family." (25) The sig-

nificance of alcohol abuse therefore may be considerably greater in abuse/neglect incidents than is currently believed.

Hunter, (26) in studies in Anchorage, Alaska reports: "Whatever the ethnic background, alcoholism is often a catalyst for other social and family problems, among them, child abuse and neglect." The report stated that 90 percent of child abuse and neglect cases were associated with alcohol abuse.

A study by Behling (27) was conducted to determine the relationship of alcoholism in child abuse cases at a large naval hospital.

In 51 cases of reported child abuse, over a period of 5 months, a significant relationship was observed. Alcoholism was present in one or both parents of 25 of these children. The alcohol abuse was sufficiently pronounced to alter the life style of one or both parents in another 10 children. Thus, one or both parents were diagnosed from the interviews as having alcoholism or being alcohol abusers in 35 of the total of 51 cases (69 percent).

Thirty-two (63 percent) of the abused children had at least one grandparent who was either alcoholic or abused alcohol.

Twenty-four (92 percent) of the 26 parents who had been abused as children reported that they were abused by a parent who was alcoholic or who abused alcohol.

Behling states: "These high rates of alcoholism or alcohol abuse in the 51 child abuse cases reminds one of the high rate of alcoholism in studies of personal violence . . . from these experiences it seems most important to search for a background of alcoholism in every instance of child abuse. When this factor is present, it may well be a principal precipitant in the child's maltreatment. When alcoholism is identified and dealt with openly, it facilitates the management and

thereby improves the prognosis for the victimized child."

The Fetal Alcohol Syndrome (FAS) has received attention and resulted in many "warnings" being issued pertaining to alcohol consumption by pregnant women. (28) However, few official reports of abuse/neglect have been made relative to the FAS. Many consequences, including brain damage and death, have been reported and resulted in responses to FAS that have been controversial and emotional. For example, Brandt and Moller, (29) in a report from Copenhagen, recommended that pregnant women with drinking problems be given the option of abortion and that sterilization be considered for alcoholics with little chance for recovery.

The Alcohol Relationship

The amount of evidence available relevant to the alcohol relationship to domestic violence appears to be significant, yet there has been to date insufficient attention given to collaborative remedial efforts.

Domestic violence literature reports that alcohol abuse, social isolation, parental history of abuse as a child, youthful and/or inexperienced parents, marital discord, life crisis, lack of or inability to utilize parental skills, lack of nurturing life experiences, and lack of support systems are some of the situations in which abuse/neglect is likely to occur. (20, 30)

Alcohol literature presents these same elements in the etiology and current behavior of the alcohol abuser and the family. (31, 32)

Personality characteristics apparently associated with the perpetrators of child/spouse abuse and neglect are also similar to those of alcohol abusers. (24, 30, 31, 32) Comparisons most often include low frustration tolerance, low self-esteem, impulsivity, dependency,

problems with role reversals, difficulty in experiencing pleasure, isolation, and inconsistency in behavior.

It is noted in child abuse/neglect literature that erratic and inconsistent parenting is a major source of neglect.⁽³²⁾

In alcoholism literature, VADM W.P. Arentzen, MC,⁽³³⁾ Surgeon General of the Navy, reported the following: "One frequently sees a deteriorating alcoholic parent oscillate between maudlin sentimentality with seductive overtones, and rages with physical attacks in dealing with the children, as well as the spouse. The children become confused with conflicting feelings of duty, pity, disgust, and resentment."

Domestic violence literature consistently reports that children of abusers become abusers.⁽²¹⁾

Alcohol literature consistently reports that children of alcohol abusers become alcohol abusers.^(34,35,36)

Implications

Incident Reporting. It has been noted by Silver, *et al*⁽³⁵⁾ that professionals and paraprofessionals are hesitant to identify a child or spouse as "abused or neglected" when the husband or wife is abusing alcohol, even when the violence is clearly a direct result of the actions of the alcohol abuser/alcoholic. It appears that many prefer to make an issue of whether the parent/spouse intended to inflict injury. The relevant issues of: the failure to protect, and the commitment of violent acts are ignored, resulting in poor or minimal intervention, leaving the family at risk for further maltreatment.

Additionally, the following are three of the most often stated reasons for lack of referral:

- ignorance of a need (or law) to address violence specifically;

- belief that referral to family services will result in the incarceration of the alcohol abuser (and thus his/her treatment for alcohol abuse will be sidetracked);
- belief that all pathology, including maltreatment acts, will be corrected when the troubles or illness of alcohol abuse is arrested.

Research Considerations. Studies of alcoholics' histories have shown that parental antisocial personalities, alcohol misuse, or drug problems correlated most closely with a high level of similar difficulties in the adolescents of such parents.^(31, 38)

Through coordinated investigations of alcohol use, abuse, and alcoholism, we may begin to isolate additional factors relating to these areas. For example, perhaps the child/spouse maltreatment among alcohol abusers is centered in a particular group of alcohol abusers. It would appear that further differentiation could provide useful information. At least one study in this regard by Penick, *et al*⁽³⁷⁾ has presented evidence that alcoholics, whose parents or grandparents drank excessively, are significantly different from alcoholics who have no family history of alcoholism. This research demonstrated that among several factors, familial alcoholism apparently results in alcoholics who have more serious problems with anger and hostile reactions than those without a familial history of excessive alcohol usage. We need to further investigate the relationship between familial alcoholism and domestic violence.

The alcohol relationship exists and it is a significant factor in domestic violence. We should recognize that alcoholism, untreated, not in remission, is significant evidence for the presence of abuse and/or neglect. At least one state, New York, has legislation directing

that diagnosed drug dependence is *prima-facie* evidence for neglect.⁽³⁹⁾ As important as this legislation is, NCCAN reports⁽²¹⁾ that drug dependence is present in only 3.5 percent of abuse/neglect cases, whereas alcohol dependence is present in 13.1 percent of reported incidents.

The screening and treatment of all alcohol-abusing families for conditions specific to child/spouse abuse and neglect is essential.

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Attention: Military Trained Technologists

The American Society of Radiologic Technologists (ASRT) has a standing committee which is composed of representatives of each of the major military services. This military liaison committee represents the interests of the radiologic technologist on active duty as well as the military trained technologist in civilian life to the ASRT.

The committee also represents the interests of the military trained technologist to the American Registry of Radiologic Technologists (ARRT). A mechanism has been developed whereby the military trained technologist can fulfill the requirements necessary to qualify for the ARRT's national certification examination. At the present time, discussions are being conducted into the feasibility of establishing testing facilities at sites other than within the continental United States for those military personnel stationed abroad who qualify for the ARRT examination.

The committee is also in discussions with the ASRT to develop ways in which the Evidence of Continuing Education (ECE) program can be utilized effectively by the military technologist who may be stationed at a duty station far removed from the large medical center or access to structured meetings of programs for continuing education. It is hopeful that a number of military training programs other than those specifically identified as being directly related to radiologic technology will be considered and approved for ECE credit by the Council on Continuing Education of the ASRT.

We are especially aware of the Vietnam veteran currently in civilian life, who due to the circumstances of the

war in Vietnam, may have been unable to complete all phases of their radiologic technology training and are currently not qualified to take the ARRT examination. We are asking these veterans to communicate with us as we are attempting to set up a mechanism through the ARRT so that these technologists can complete their requirements and qualify for examination.

We encourage the military radiologic technologist to join the ASRT and to participate in their programs and benefits. We further encourage you to contact the military liaison committee members and express your ideas and views on how the military and civilian technologist can work together for the advancement of our common goals and our profession.

Anyone who knows of an individual who was trained in the military and is experiencing difficulty in meeting the qualifications for the ARRT examination, should have that individual contact the representative of their respective service: HMC Robert W. Jones, RT, USN, Naval School of Health Sciences, Naval Regional Medical Center, Portsmouth, Va. 23708; MSGT Richard Hone, RT, USAF, School of Health Care Sciences/MSDM, Radiology, Sheppard Air Force Base, Tex. 76311; SFC Robert A. Gordon, RT, USA, X-ray Branch, Medical and Surgery Division, Academy of Health Sciences, Fort Sam Houston, Tex. 78234.

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Navy Occupational Health Policy

On 14 Jan 1980, VADM W.P. Arentzen, MC, Surgeon General of the Navy, delivered the keynote address at the 22nd Navy Occupational Health Workshop in San Diego, Calif. U.S. NAVY MEDICINE here reprints the text of that speech.

The Challenge

Since its enactment, the omnibus Occupational Safety and Health Act has become many things to many people. To the workers of American industry the Act laid the foundation for the development of safe and healthful work environments. To management it has become a legitimate collective bargaining issue. When coupled with environmental protection regulations, it has been viewed as an enormous government intrusion into an already complicated and delicate balance of power between management and labor. For health care providers and educators it has become a challenge to train and provide yet another scarce manpower resource for research, management, and education.

During my tenure as Navy Surgeon General, I have been a strong advocate of the environmental and occupational health program. I see it as a program for improving the health of our people, a program that emphasizes prevention as much as cure. It is an ambitious program which can substantially reduce both the suffering of our people and the monetary burden on our system of medical care.

One of the older schools of management theory held that certain personal traits were the common denominator for defining the successful manager. While the

eclectics among us would question the validity of such an assertion, I think they would agree that certain personality characteristics portend success more than others. There are five characteristics or principles which I trust you will exhibit during the course of your deliberations over the next several days. These are: responsibility, perseverance, creativity, excellence, and courage. The impact of your efforts will depend to a large measure on the extent to which these principles are applied during your deliberations.

The principle which drives human beings to become involved is responsibility—not in the legal sense, but, in the moral and ethical sense. The Occupational Safety and Health Act dictates the legal responsibilities for all employers with regard to providing safe and healthful work environments for their workers. OSHA legitimized for others what we in the medical professions have always perceived as moral and ethical responsibilities. We are collectively responsible for insuring that the environment in which our employees work does not cause them harm.

It is axiomatic among management personnel that change will beget resistance among their employees. All too often, however, these same managers fail to apply that same axiom to their own behavior. We are all aware of, or have personally experienced, the frustration involved with changing a manager's or supervisor's method of operation for the sake of improved working conditions. We also know that the most successful among us at implementing those changes are those who persevere. Perseverance in and of itself, how-

ever, is of little more value than ignorant stubbornness.

The third principle which we should always apply is creativity. It is the rare circumstance which leaves us with a single feasible solution to a problem. Depending upon the constraints within which we are forced to operate, most problems will yield to a number of feasible solutions. Apply your creative capacities to the problems and tasks at hand and we will enhance our ability to overcome resistance to change and insure the health of the American workforce.

In the area of occupational health there is an enormous requirement for resources and programs to redress work practices and environments of the past. The particular resource in greatest demand is also the one which is the most difficult to obtain—skilled, qualified manpower. Occupational health physicians and nurses, industrial hygienists, epidemiologists, and a myriad of technicians and technologists are required to implement meaningful and successful programs of occupational safety and health. Excellence will be required in research, training, education, and planning if we are to make the best possible use of these difficult to obtain manpower resources. Remember, we share the responsibility for providing healthful work environments for our employees with other federal agencies and the civilian sector. Mediocrity in research, training, or program planning will lead inevitably to a misuse of scarce resources, and we will all share the responsibility for implementing programs of overkill in some areas and totally inadequate programs in others.

The last principle I will discuss is

courage. The returns on any investment are directly proportional to the risks inherent in that investment. Low risk financial investments return very little against the invested capital and require little courage to pursue. On the other hand, high risk investments may tax our stores of personal courage, but they hold the potential for much larger returns on the investments. Our greatest investments as health professionals lie in our conviction of the rightness of what we do. We must have the courage to seek excellence in our endeavors, to be creative but perseverant, and to maintain the sense of responsibility which has served us so well this far. I realize that this is a big order, but we have big challenges and opportunities, too big to settle for mediocrity in our performance.

Asbestos Program

I also want to use this opportunity to emphasize that the Navy occupational health program is a team effort. The asbestos control program is a good example of Navy teamwork. Under the leadership of the Navy Environmental Health Center, and particularly Dr. Edwards, the asbestos program manager, the asbestos control program has come a long way. Our medical surveillance program continues to move forward and eventually will provide exciting new information on the epidemiology and natural history of asbestos-related disease. The medical surveillance program has other benefits as well:

- It has brought us improved quality control in x-ray technology;
- It will enable us to evaluate scientifically the strengths and shortcomings of various mass screening tests for pulmonary disease and;
- It will provide important information on the epidemiology and con-

trol of lung disease caused by smoking.

The asbestos medical surveillance program will give us the critical information for eliminating the asbestos problem. One can't eliminate a problem if he doesn't know the actual aspects of that problem. A problem well stated is a problem half solved. All of this is important to the prevention of disease.

Noise Abatement and Hearing Conservation

Noise induced hearing loss is another occupational health problem under vigorous attack. The Chief of Naval Operations has promulgated a new Navy policy for occupational noise control and hearing conservation—OPNAVINST 6260.2. This instruction gives hearing conservation new emphasis within the Navy. Control of worker exposure to hazardous noise is directed as a clear priority for line commanders. Noise must be engineered "out" and the wearing of hearing protection must be enforced. The new instruction requires the Medical Department to provide hearing testing to larger groups of Navy personnel. I have directed additional resources for support of efforts to provide high quality audiometry. You viewed the first Navy mobile hearing conservation audiometric trailer at this workshop last year. We will have 20 of them within the next few years. We are now bringing 12 audiologists on active duty to support these efforts, and microprocessor audiometers throughout the Medical Department will be our next step forward. Microprocessor technology will improve the quality of our audiograms and provide important data for sophisticated program management.

The Navy Environmental Health Center has provided the important

leadership to get this program moving. It has been said that people can be divided into three groups, those who make things happen, those who watch things happen, and those who wonder what happened. In hearing conservation, the Navy Environmental Health Center has been making things happen by its leadership and aggressive action.

I have also directed the Navy Environmental Health Center to develop an implementation plan whereby all occupational and preventive medicine programs in the field will gradually come under a single central program management. Central management under the Navy Environmental Health Center will enable us to provide more effective and efficient preventive services to all fleet and shore-based personnel.

Occupational Safety and Health Policy

Now I would like to express the Medical Department's policy and position on three aspects of our occupational safety and health programs: the use of industrial hygienists, enforcement of compliance standards, and the importance of engineering changes.

I spoke earlier of the responsibility we all share for making the best possible use of scarce resources. It goes without saying that the demand for professional industrial hygienists has accelerated at a much faster pace than can presently be met by our educational facilities. It behooves us, therefore, to be prudent in our decisions to recruit these professionals. There is no question that industrial hygienists, if in good supply, could be used profitably in positions not requiring the specific skills they possess. We all prefer to have extra capacity on hand when we can afford it. Unfor-

tunately, few of us can presently afford it. Industrial hygiene is a paramedical function and as such should fall under the cognizance and management of the Medical Department. This is current Navy policy and is the policy of the major industrial organizations in the civilian sector. Although it is feasible to have industrial hygienists in both the medical and line communities, it is not the most prudent use of scarce health manpower. The regional medical department industrial hygienist is responsible for advising the commanders of industrial activities of any deficiencies noted during surveillance inspections and making recommendations for their abatement. It is the responsibility of the line commander to insure that safe work practice recommendations are implemented and routinely observed by the workplace supervisor.

The second policy issue I wish to speak with you about is enforcement of occupational health standards. The Medical Department's role in occupational health and safety is that of providing professional services to line commanders. In fulfilling that role, Medical Department personnel are responsible for developing standards, identifying hazardous workplace conditions, and reporting those conditions to the line commander. Therefore, Medical Department personnel are involved only with observa-

tion and recommendation. The line commander is charged with implementing corrective action and insuring such action is taken. The line commander's purview, then, is enforcement of compliance to standards.

There are several reasons why Medical Department personnel should not be involved with the enforcement of corrective action. First, medical personnel are professional advisors, and as such, have no line authority in the workplace. Second, the line manager must maintain the prerogative to weigh the various alternatives in view of medical recommendations, and then make the appropriate decision to accomplish his mission objectives. Third, if medical personnel are identified as the enforcers, experience has shown that personnel and supervisors in the workplace will attempt to "cover up" or not discuss hazardous conditions with them, in anticipation of possible future reprimands.

Prevention

The last issue I want to discuss is, perhaps, the most important of all. Our strategy in occupational medicine is a preventive one. The best way to prevent occupational disease is to eliminate hazards from the workplace. The temptation to seek short-term relief from congressional, labor, and media pressure

by hiring health professionals to study the problems is understandable, but this type of action does not by itself promote the health and well-being of the worker. The most effective reduction of health hazards results from engineering changes such as reducing machinery noise or removing hazardous substances from the workplace atmosphere. Substitution of less hazardous materials, where possible, and training our workers in the proper safe handling of hazardous material does much to reduce workplace hazards. The greatest potential return on investment, however, is to be found in engineering changes in the workplace. These changes will be costly and will require a substantial commitment on the part of line managers, but they must be achieved. Substitution, protective devices, and training are but a small part of the solution.

I wish you good favor in your deliberations. Your team effort here is timely and important because it has real meaning for the great majority of working Americans.

Therefore, I charge you to accept the burden of responsibility to persevere with personal courage and to encourage creativity and excellence. If you will continue to commit yourselves totally, I know the Navy's occupational health program will be a model for others to follow—at a time when a workable model is so desperately needed.

Planning Pays Off: An Outpatient Reporting System at Memphis

LT Joan Dooling, MSC, USN

In the fall of 1976 a study was begun to evaluate the reporting system in use in the Outpatient Department at NRMC Memphis. The primary study sites were the family practice clinic and primary care clinic which, when combined, delivered approximately 50 percent of the hospital-based ambulatory care at this medical center. The three-month study revealed the following situation:

- The patient "log-in" method which served as the ground document for counting and categorizing clinical visits was extremely cumbersome and had resulted in an understatement of the number of actual services rendered.
- Approximately five to seven hours per week of Hospital Corps staff time was being spent in the clerical tasks associated with the inaccurately stated clinic workload report.
- There was no well defined and consistent understanding among key clinic personnel of the services which constituted clinic visits and, of more concern, little understanding or appreciation of the importance of these concepts and statistics.
- In spite of the legitimacy of units of service being provided and documented by various Hospital Corps and nursing staff there were no

organized inservice programs designed to teach the method of recognizing and reporting these visits. It appeared that only "physician" services were being considered.

- There was virtually no control point or single source of information for matters of policy related to workload reporting. Thus, the census determination was somewhat of a hit and miss operation.
- There was poor and sometimes no communication between the clinical staff charged with collecting statistics and the administrative personnel responsible for compiling data for the NAVMED 6300/1 Medical Services and Outpatient Morbidity Report.
- The audit trail for outpatient visits was not properly defined.
- There were no accurate ways to keep outpatient health care providers informed of the ongoing level of performance within their respective areas.

Following the initial study period, nursing, administrative, and medical personnel involved in the operation of the outpatient clinics reviewed the above points. They agreed that problem areas existed throughout the entire Outpatient Department in terms of the workload reporting system.

Study Group and Test Site

The Director of Clinical Services granted permission to undertake the design phase of the study. A pilot project would be implemented

in the family practice and primary care clinics and the project evaluated after 12 months for possible conversion to a permanent program designed to encompass all ambulatory care clinics including the branch clinic.

A concurrent study was undertaken to determine the number and types of health services (by medical speciality) delivered by varying levels of providers (MD, PA, nurse practitioner, RN/Corps staff) within the Navy's relatively new family practice setting. Information from this study would include the comparison of health services provided to the two major user groups; (1) active duty and their dependents, and (2) retired members and their dependents. The design standard required that this information be generated from the same program being tested for reporting outpatient visits.

It would seem safe to assume that the potential useful life of any data gathering device will vary given the knowledge, orientation, and experience of the individuals involved in the design phase. In view of the broad scope of information required for development of this project, the multi-discipline team approach was used. The primary project members included the medical chief of family practice/primary care (MC), the Ambulatory Care Coordinator (NC), the Chief, Data Processing (Civilian Data Processor), and the administrative officer of the clinics (MSC). The administrative officer was Project Manager and the Chief, Data

LT Dooling is currently teaching management information systems at the Naval School of Health Sciences, Bethesda, Md. 20014.

Processing acted as the technical expert for purposes of the study.

A common bond uniting this group was the feeling that the growing ambulatory care system at this command needed a method to define, measure, and project the activity parameters associated with the delivery of health care services. Basic was the existence of a reporting system that would accurately reflect services rendered by all levels of providers.

Program Requirements

The system had to provide statistics that satisfied both BUMED and UCA (Uniform Chart of Accounts) reporting requirements and do so with the greatest possible accuracy. It had to encompass as many reports as possible that are required of the outpatient clinics including the branch clinic in order to be a permanent asset to the command. It had to take less staff preparation time and improve upon the accuracy of the present method. The system had to lend itself to ease of understanding on the part of staff involved in its application.

It also had to utilize the data processing capabilities presently available (an existing IBM 1401 computer) as a substitute for the present "hand count" method of compilation. (Design standards will incorporate future conversion to an on-line capture of workload statistics.) The system had to include a well defined audit element for all services provided. It had to be adaptable to a defined implementation timetable with scheduled evaluation and re-design cycles. The costs associated with the system had to be identifiable for purposes of staffing and budget justification. There had to be safeguards built in to identify inappropriately submitted "units of service." This actually turned out to be a reciprocal element of the program which dis-

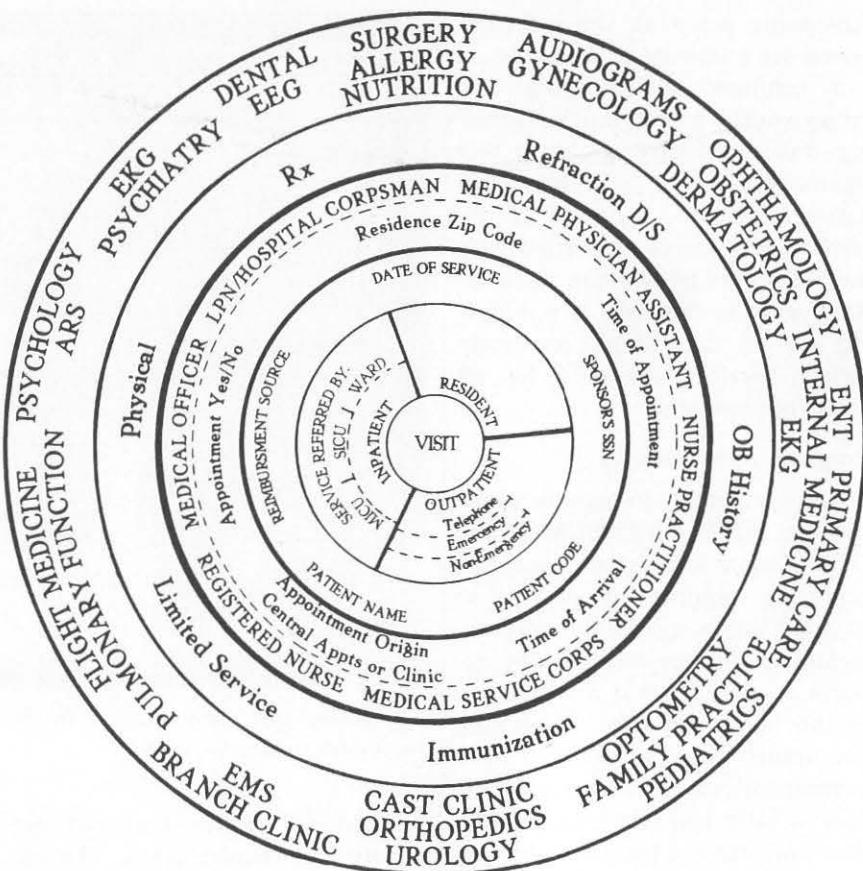
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CAT.</td> <td></td> </tr> <tr> <td>164. DR. MD.</td> <td>164. DRUG</td> <td>164. DRUG</td> <td>351. MED. SURG. 352. DENT. CAT.</td> <td></td> </tr> <tr> <td>165. DR. MD.</td> <td>165. DRUG</td> <td>165. DRUG</td> <td>353. MED. SURG. 354. DENT. CAT.</td> <td></td> </tr> <tr> <td>166. DR. MD.</td> <td>166. DRUG</td> <td>166. DRUG</td> <td>355. MED. SURG. 356. DENT. CAT.</td> <td></td> </tr> <tr> <td>167. DR. MD.</td> <td>167. DRUG</td> <td>167. DRUG</td> <td>357. MED. SURG. 358. DENT. CAT.</td> <td></td> </tr> <tr> <td>168. DR. MD.</td> <td>168. DRUG</td> <td>168. DRUG</td> <td>359. MED. SURG. 360. DENT. CAT.</td> <td></td> </tr> <tr> <td>169. DR. MD.</td> <td>169. DRUG</td> <td>169. DRUG</td> <td>361. MED. SURG. 362. DENT. CAT.</td> <td></td> </tr> <tr> <td>170. DR. MD.</td> <td>170. DRUG</td> <td>170. DRUG</td> <td>363. MED. SURG. 364. DENT. CAT.</td> <td></td> </tr> <tr> <td>171. DR. MD.</td> <td>171. DRUG</td> <td>171. DRUG</td> <td>365. MED. SURG. 366. DENT. CAT.</td> <td></td> </tr> <tr> <td>172. DR. MD.</td> <td>172. DRUG</td> <td>172. DRUG</td> <td>367. MED. SURG. 368. D</td></tr></tbody></table>																		LAST NAME, FIRST	PAT.COD.	REG. NO.	1st DAY TO TIME	DR. CL.	APPOINTMENT					1. DR.	1. DENT.	1. OPTICAL	24. MED. 27. SURG. 30. NURSES		2. MD.	2. DENT.	2. OPTICAL	29. O.R. NIGHT 32. SURG/OPR.		3. NURSE	3. DENT.	3. OPTICAL	30. PHYSICAL 33. MED. SURG.		4. ENMT.	4. DENT.	4. OPTICAL	31. MED. SURG. 34. DENT. CAT.		5. DR. MD.	5. DENT.	5. OPTICAL	32. MED. SURG. 35. DENT. CAT.		6. DR. MD.	6. DRUG	6. DRUG	33. MED. SURG. 36. DENT. CAT.		7. DR. MD.	7. DRUG	7. DRUG	37. MED. SURG. 38. DENT. CAT.		8. DR. MD.	8. DRUG	8. DRUG	39. MED. SURG. 40. DENT. CAT.		9. DR. MD.	9. DRUG	9. DRUG	41. MED. SURG. 42. DENT. CAT.		10. DR. MD.	10. DRUG	10. DRUG	43. MED. SURG. 44. DENT. CAT.		11. DR. MD.	11. DRUG	11. DRUG	45. MED. SURG. 46. DENT. CAT.		12. DR. MD.	12. DRUG	12. DRUG	47. MED. SURG. 48. DENT. CAT.		13. DR. MD.	13. DRUG	13. DRUG	49. MED. SURG. 50. DENT. CAT.		14. DR. MD.	14. DRUG	14. DRUG	51. MED. SURG. 52. DENT. CAT.		15. DR. MD.	15. DRUG	15. DRUG	53. MED. SURG. 54. DENT. CAT.		16. DR. MD.	16. DRUG	16. DRUG	55. MED. SURG. 56. DENT. CAT.		17. DR. MD.	17. DRUG	17. DRUG	57. MED. SURG. 58. DENT. CAT.		18. DR. MD.	18. DRUG	18. DRUG	59. MED. SURG. 60. DENT. CAT.		19. DR. MD.	19. DRUG	19. DRUG	61. MED. SURG. 62. DENT. CAT.		20. DR. MD.	20. DRUG	20. DRUG	63. MED. SURG. 64. DENT. CAT.		21. DR. MD.	21. DRUG	21. DRUG	65. MED. SURG. 66. DENT. CAT.		22. DR. MD.	22. DRUG	22. DRUG	67. MED. SURG. 68. DENT. CAT.		23. DR. MD.	23. DRUG	23. DRUG	69. MED. SURG. 70. DENT. CAT.		24. DR. MD.	24. DRUG	24. DRUG	71. MED. SURG. 72. DENT. CAT.		25. DR. MD.	25. DRUG	25. DRUG	73. MED. SURG. 74. DENT. CAT.		26. DR. MD.	26. DRUG	26. DRUG	75. MED. SURG. 76. DENT. CAT.		27. DR. MD.	27. DRUG	27. DRUG	77. MED. SURG. 78. DENT. CAT.		28. DR. MD.	28. DRUG	28. DRUG	79. MED. SURG. 80. DENT. CAT.		29. DR. MD.	29. DRUG	29. DRUG	81. MED. SURG. 82. DENT. CAT.		30. DR. MD.	30. DRUG	30. DRUG	83. MED. SURG. 84. DENT. CAT.		31. DR. MD.	31. DRUG	31. DRUG	85. MED. SURG. 86. DENT. CAT.		32. DR. MD.	32. DRUG	32. DRUG	87. MED. SURG. 88. DENT. CAT.		33. DR. MD.	33. DRUG	33. DRUG	89. MED. SURG. 90. DENT. CAT.		34. DR. MD.	34. DRUG	34. DRUG	91. MED. SURG. 92. DENT. CAT.		35. DR. MD.	35. DRUG	35. DRUG	93. MED. SURG. 94. DENT. CAT.		36. DR. MD.	36. DRUG	36. DRUG	95. MED. SURG. 96. DENT. CAT.		37. DR. MD.	37. DRUG	37. DRUG	97. MED. SURG. 98. DENT. CAT.		38. DR. MD.	38. DRUG	38. DRUG	99. MED. SURG. 100. DENT. CAT.		39. DR. MD.	39. DRUG	39. DRUG	101. MED. SURG. 102. DENT. CAT.		40. DR. MD.	40. DRUG	40. DRUG	103. MED. SURG. 104. DENT. CAT.		41. DR. MD.	41. DRUG	41. DRUG	105. MED. SURG. 106. DENT. CAT.		42. DR. MD.	42. DRUG	42. DRUG	107. MED. SURG. 108. DENT. CAT.		43. DR. MD.	43. DRUG	43. DRUG	109. MED. SURG. 110. DENT. CAT.		44. DR. MD.	44. DRUG	44. DRUG	111. MED. SURG. 112. DENT. CAT.		45. DR. MD.	45. DRUG	45. DRUG	113. MED. SURG. 114. DENT. CAT.		46. DR. MD.	46. DRUG	46. DRUG	115. MED. SURG. 116. DENT. CAT.		47. DR. MD.	47. DRUG	47. DRUG	117. MED. SURG. 118. DENT. CAT.		48. DR. MD.	48. DRUG	48. DRUG	119. MED. SURG. 120. DENT. CAT.		49. DR. MD.	49. DRUG	49. DRUG	121. MED. SURG. 122. DENT. CAT.		50. DR. MD.	50. DRUG	50. DRUG	123. MED. SURG. 124. DENT. CAT.		51. DR. MD.	51. DRUG	51. DRUG	125. MED. SURG. 126. DENT. CAT.		52. DR. MD.	52. DRUG	52. DRUG	127. MED. SURG. 128. DENT. CAT.		53. DR. MD.	53. DRUG	53. DRUG	129. MED. SURG. 130. DENT. CAT.		54. DR. MD.	54. DRUG	54. DRUG	131. MED. SURG. 132. DENT. CAT.		55. DR. MD.	55. DRUG	55. DRUG	133. MED. SURG. 134. DENT. CAT.		56. DR. MD.	56. DRUG	56. DRUG	135. MED. SURG. 136. DENT. CAT.		57. DR. MD.	57. DRUG	57. DRUG	137. MED. SURG. 138. DENT. CAT.		58. DR. MD.	58. DRUG	58. DRUG	139. MED. SURG. 140. DENT. CAT.		59. DR. MD.	59. DRUG	59. DRUG	141. MED. SURG. 142. DENT. CAT.		60. DR. MD.	60. DRUG	60. DRUG	143. MED. SURG. 144. DENT. CAT.		61. DR. MD.	61. DRUG	61. DRUG	145. MED. SURG. 146. DENT. CAT.		62. DR. MD.	62. DRUG	62. DRUG	147. MED. SURG. 148. DENT. CAT.		63. DR. MD.	63. DRUG	63. DRUG	149. MED. SURG. 150. DENT. CAT.		64. DR. MD.	64. DRUG	64. DRUG	151. MED. SURG. 152. DENT. CAT.		65. DR. MD.	65. DRUG	65. DRUG	153. MED. SURG. 154. DENT. CAT.		66. DR. MD.	66. DRUG	66. DRUG	155. MED. SURG. 156. DENT. CAT.		67. DR. MD.	67. DRUG	67. DRUG	157. MED. SURG. 158. DENT. CAT.		68. DR. MD.	68. DRUG	68. DRUG	159. MED. SURG. 160. DENT. CAT.		69. DR. MD.	69. DRUG	69. DRUG	161. MED. SURG. 162. DENT. CAT.		70. DR. MD.	70. DRUG	70. DRUG	163. MED. SURG. 164. DENT. CAT.		71. DR. MD.	71. DRUG	71. DRUG	165. MED. SURG. 166. DENT. CAT.		72. DR. MD.	72. DRUG	72. DRUG	167. MED. SURG. 168. DENT. CAT.		73. DR. MD.	73. DRUG	73. DRUG	169. MED. SURG. 170. DENT. CAT.		74. DR. MD.	74. DRUG	74. DRUG	171. MED. SURG. 172. DENT. CAT.		75. DR. MD.	75. DRUG	75. DRUG	173. MED. SURG. 174. DENT. CAT.		76. DR. MD.	76. DRUG	76. DRUG	175. MED. SURG. 176. DENT. CAT.		77. DR. MD.	77. DRUG	77. DRUG	177. MED. SURG. 178. DENT. CAT.		78. DR. MD.	78. DRUG	78. DRUG	179. MED. SURG. 180. DENT. CAT.		79. DR. MD.	79. DRUG	79. DRUG	181. MED. SURG. 182. DENT. CAT.		80. DR. MD.	80. DRUG	80. DRUG	183. MED. SURG. 184. DENT. CAT.		81. DR. MD.	81. DRUG	81. DRUG	185. MED. SURG. 186. DENT. CAT.		82. DR. MD.	82. DRUG	82. DRUG	187. MED. SURG. 188. DENT. CAT.		83. DR. MD.	83. DRUG	83. DRUG	189. MED. SURG. 190. DENT. CAT.		84. DR. MD.	84. DRUG	84. DRUG	191. MED. SURG. 192. DENT. CAT.		85. DR. MD.	85. DRUG	85. DRUG	193. MED. SURG. 194. DENT. CAT.		86. DR. MD.	86. DRUG	86. DRUG	195. MED. SURG. 196. DENT. CAT.		87. DR. MD.	87. DRUG	87. DRUG	197. MED. SURG. 198. DENT. CAT.		88. DR. MD.	88. DRUG	88. DRUG	199. MED. SURG. 200. DENT. CAT.		89. DR. MD.	89. DRUG	89. DRUG	201. MED. SURG. 202. DENT. CAT.		90. DR. MD.	90. DRUG	90. DRUG	203. MED. SURG. 204. DENT. CAT.		91. DR. MD.	91. DRUG	91. DRUG	205. MED. SURG. 206. DENT. CAT.		92. DR. MD.	92. DRUG	92. DRUG	207. MED. SURG. 208. DENT. CAT.		93. DR. MD.	93. DRUG	93. DRUG	209. MED. SURG. 210. DENT. CAT.		94. DR. MD.	94. DRUG	94. DRUG	211. MED. SURG. 212. DENT. CAT.		95. DR. MD.	95. DRUG	95. DRUG	213. MED. SURG. 214. DENT. CAT.		96. DR. MD.	96. DRUG	96. DRUG	215. MED. SURG. 216. DENT. CAT.		97. DR. MD.	97. DRUG	97. DRUG	217. MED. SURG. 218. DENT. CAT.		98. DR. MD.	98. DRUG	98. DRUG	219. MED. SURG. 220. DENT. CAT.		99. DR. MD.	99. DRUG	99. DRUG	221. MED. SURG. 222. DENT. CAT.		100. DR. MD.	100. DRUG	100. DRUG	223. MED. SURG. 224. DENT. CAT.		101. DR. MD.	101. DRUG	101. DRUG	225. MED. SURG. 226. DENT. CAT.		102. DR. MD.	102. DRUG	102. DRUG	227. MED. SURG. 228. DENT. CAT.		103. DR. MD.	103. DRUG	103. DRUG	229. MED. SURG. 230. DENT. CAT.		104. DR. MD.	104. DRUG	104. DRUG	231. MED. SURG. 232. DENT. CAT.		105. DR. MD.	105. DRUG	105. DRUG	233. MED. SURG. 234. DENT. CAT.		106. DR. MD.	106. DRUG	106. DRUG	235. MED. SURG. 236. DENT. CAT.		107. DR. MD.	107. DRUG	107. DRUG	237. MED. SURG. 238. DENT. CAT.		108. DR. MD.	108. DRUG	108. DRUG	239. MED. SURG. 240. DENT. CAT.		109. DR. MD.	109. DRUG	109. DRUG	241. MED. SURG. 242. DENT. CAT.		110. DR. MD.	110. DRUG	110. DRUG	243. MED. SURG. 244. DENT. CAT.		111. DR. MD.	111. DRUG	111. DRUG	245. MED. SURG. 246. DENT. CAT.		112. DR. MD.	112. DRUG	112. DRUG	247. MED. SURG. 248. DENT. CAT.		113. DR. MD.	113. DRUG	113. DRUG	249. MED. SURG. 250. DENT. CAT.		114. DR. MD.	114. DRUG	114. DRUG	251. MED. SURG. 252. DENT. CAT.		115. DR. MD.	115. DRUG	115. DRUG	253. MED. SURG. 254. DENT. CAT.		116. DR. MD.	116. DRUG	116. DRUG	255. MED. SURG. 256. DENT. CAT.		117. DR. MD.	117. DRUG	117. DRUG	257. MED. SURG. 258. DENT. CAT.		118. DR. MD.	118. DRUG	118. DRUG	259. MED. SURG. 260. DENT. CAT.		119. DR. MD.	119. DRUG	119. DRUG	261. MED. SURG. 262. DENT. CAT.		120. DR. MD.	120. DRUG	120. DRUG	263. MED. SURG. 264. DENT. CAT.		121. DR. MD.	121. DRUG	121. DRUG	265. MED. SURG. 266. DENT. CAT.		122. DR. MD.	122. DRUG	122. DRUG	267. MED. SURG. 268. DENT. CAT.		123. DR. MD.	123. DRUG	123. DRUG	269. MED. SURG. 270. DENT. CAT.		124. DR. MD.	124. DRUG	124. DRUG	271. MED. SURG. 272. DENT. CAT.		125. DR. MD.	125. DRUG	125. DRUG	273. MED. SURG. 274. DENT. CAT.		126. DR. MD.	126. DRUG	126. DRUG	275. MED. SURG. 276. DENT. CAT.		127. DR. MD.	127. DRUG	127. DRUG	277. MED. SURG. 278. DENT. CAT.		128. DR. MD.	128. DRUG	128. DRUG	279. MED. SURG. 280. DENT. CAT.		129. DR. MD.	129. DRUG	129. DRUG	281. MED. SURG. 282. DENT. CAT.		130. DR. MD.	130. DRUG	130. DRUG	283. MED. SURG. 284. DENT. CAT.		131. DR. MD.	131. DRUG	131. DRUG	285. MED. SURG. 286. DENT. CAT.		132. DR. MD.	132. DRUG	132. DRUG	287. MED. SURG. 288. DENT. CAT.		133. DR. MD.	133. DRUG	133. DRUG	289. MED. SURG. 290. DENT. CAT.		134. DR. MD.	134. DRUG	134. DRUG	291. MED. SURG. 292. DENT. CAT.		135. DR. MD.	135. DRUG	135. DRUG	293. MED. SURG. 294. DENT. CAT.		136. DR. MD.	136. DRUG	136. DRUG	295. MED. SURG. 296. DENT. CAT.		137. DR. MD.	137. DRUG	137. DRUG	297. MED. SURG. 298. DENT. CAT.		138. DR. MD.	138. DRUG	138. DRUG	299. MED. SURG. 300. DENT. CAT.		139. DR. MD.	139. DRUG	139. DRUG	301. MED. SURG. 302. DENT. CAT.		140. DR. MD.	140. DRUG	140. DRUG	303. MED. SURG. 304. DENT. CAT.		141. DR. MD.	141. DRUG	141. DRUG	305. MED. SURG. 306. DENT. CAT.		142. DR. MD.	142. DRUG	142. DRUG	307. MED. SURG. 308. DENT. CAT.		143. DR. MD.	143. DRUG	143. DRUG	309. MED. SURG. 310. DENT. CAT.		144. DR. MD.	144. DRUG	144. DRUG	311. MED. SURG. 312. DENT. CAT.		145. DR. MD.	145. DRUG	145. DRUG	313. MED. SURG. 314. DENT. CAT.		146. DR. MD.	146. DRUG	146. DRUG	315. MED. SURG. 316. DENT. CAT.		147. DR. MD.	147. DRUG	147. DRUG	317. MED. SURG. 318. DENT. CAT.		148. DR. MD.	148. DRUG	148. DRUG	319. MED. SURG. 320. DENT. CAT.		149. DR. MD.	149. DRUG	149. DRUG	321. MED. SURG. 322. DENT. CAT.		150. DR. MD.	150. DRUG	150. DRUG	323. MED. SURG. 324. DENT. CAT.		151. DR. MD.	151. DRUG	151. DRUG	325. MED. SURG. 326. DENT. CAT.		152. DR. MD.	152. DRUG	152. DRUG	327. MED. SURG. 328. DENT. CAT.		153. DR. MD.	153. DRUG	153. DRUG	329. MED. SURG. 330. DENT. CAT.		154. DR. MD.	154. DRUG	154. DRUG	331. MED. SURG. 332. DENT. CAT.		155. DR. MD.	155. DRUG	155. DRUG	333. MED. SURG. 334. DENT. CAT.		156. DR. MD.	156. DRUG	156. DRUG	335. MED. SURG. 336. DENT. CAT.		157. DR. MD.	157. DRUG	157. DRUG	337. MED. SURG. 338. DENT. CAT.		158. DR. MD.	158. DRUG	158. DRUG	339. MED. SURG. 340. DENT. CAT.		159. DR. MD.	159. DRUG	159. DRUG	341. MED. SURG. 342. DENT. CAT.		160. DR. MD.	160. DRUG	160. DRUG	343. MED. SURG. 344. DENT. CAT.		161. DR. MD.	161. DRUG	161. DRUG	345. MED. SURG. 346. DENT. CAT.		162. DR. MD.	162. DRUG	162. DRUG	347. MED. SURG. 348. DENT. CAT.		163. DR. MD.	163. DRUG	163. DRUG	349. MED. SURG. 350. DENT. CAT.		164. DR. MD.	164. DRUG	164. DRUG	351. MED. SURG. 352. DENT. CAT.		165. DR. MD.	165. DRUG	165. DRUG	353. MED. SURG. 354. DENT. CAT.		166. DR. MD.	166. DRUG	166. DRUG	355. MED. SURG. 356. DENT. CAT.		167. DR. MD.	167. DRUG	167. DRUG	357. MED. SURG. 358. DENT. CAT.		168. DR. MD.	168. DRUG	168. DRUG	359. MED. SURG. 360. DENT. CAT.		169. DR. MD.	169. DRUG	169. DRUG	361. MED. SURG. 362. DENT. CAT.		170. DR. MD.	170. DRUG	170. DRUG	363. MED. SURG. 364. DENT. CAT.		171. DR. MD.	171. DRUG	171. DRUG	365. MED. SURG. 366. DENT. CAT.		172. DR. MD.	172. DRUG	172. DRUG	367. MED. SURG. 368. D
LAST NAME, FIRST	PAT.COD.	REG. NO.	1st DAY TO TIME	DR. CL.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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5. DR. MD.	5. DENT.	5. OPTICAL	32. MED. SURG. 35. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
6. DR. MD.	6. DRUG	6. DRUG	33. MED. SURG. 36. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
7. DR. MD.	7. DRUG	7. DRUG	37. MED. SURG. 38. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
8. DR. MD.	8. DRUG	8. DRUG	39. MED. SURG. 40. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
9. DR. MD.	9. DRUG	9. DRUG	41. MED. SURG. 42. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
10. DR. MD.	10. DRUG	10. DRUG	43. MED. SURG. 44. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
11. DR. MD.	11. DRUG	11. DRUG	45. MED. SURG. 46. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
12. DR. MD.	12. DRUG	12. DRUG	47. MED. SURG. 48. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
13. DR. MD.	13. DRUG	13. DRUG	49. MED. SURG. 50. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
14. DR. MD.	14. DRUG	14. DRUG	51. MED. SURG. 52. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
15. DR. MD.	15. DRUG	15. DRUG	53. MED. SURG. 54. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
16. DR. MD.	16. DRUG	16. DRUG	55. MED. SURG. 56. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
17. DR. MD.	17. DRUG	17. DRUG	57. MED. SURG. 58. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
18. DR. MD.	18. DRUG	18. DRUG	59. MED. SURG. 60. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
19. DR. MD.	19. DRUG	19. DRUG	61. MED. SURG. 62. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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21. DR. MD.	21. DRUG	21. DRUG	65. MED. SURG. 66. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
22. DR. MD.	22. DRUG	22. DRUG	67. MED. SURG. 68. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
23. DR. MD.	23. DRUG	23. DRUG	69. MED. SURG. 70. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
24. DR. MD.	24. DRUG	24. DRUG	71. MED. SURG. 72. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
25. DR. MD.	25. DRUG	25. DRUG	73. MED. SURG. 74. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
26. DR. MD.	26. DRUG	26. DRUG	75. MED. SURG. 76. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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28. DR. MD.	28. DRUG	28. DRUG	79. MED. SURG. 80. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
29. DR. MD.	29. DRUG	29. DRUG	81. MED. SURG. 82. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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31. DR. MD.	31. DRUG	31. DRUG	85. MED. SURG. 86. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
32. DR. MD.	32. DRUG	32. DRUG	87. MED. SURG. 88. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
33. DR. MD.	33. DRUG	33. DRUG	89. MED. SURG. 90. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
34. DR. MD.	34. DRUG	34. DRUG	91. MED. SURG. 92. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
35. DR. MD.	35. DRUG	35. DRUG	93. MED. SURG. 94. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
36. DR. MD.	36. DRUG	36. DRUG	95. MED. SURG. 96. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
37. DR. MD.	37. DRUG	37. DRUG	97. MED. SURG. 98. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
38. DR. MD.	38. DRUG	38. DRUG	99. MED. SURG. 100. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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41. DR. MD.	41. DRUG	41. DRUG	105. MED. SURG. 106. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
42. DR. MD.	42. DRUG	42. DRUG	107. MED. SURG. 108. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
43. DR. MD.	43. DRUG	43. DRUG	109. MED. SURG. 110. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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46. DR. MD.	46. DRUG	46. DRUG	115. MED. SURG. 116. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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48. DR. MD.	48. DRUG	48. DRUG	119. MED. SURG. 120. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
49. DR. MD.	49. DRUG	49. DRUG	121. MED. SURG. 122. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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51. DR. MD.	51. DRUG	51. DRUG	125. MED. SURG. 126. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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57. DR. MD.	57. DRUG	57. DRUG	137. MED. SURG. 138. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
58. DR. MD.	58. DRUG	58. DRUG	139. MED. SURG. 140. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
59. DR. MD.	59. DRUG	59. DRUG	141. MED. SURG. 142. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
60. DR. MD.	60. DRUG	60. DRUG	143. MED. SURG. 144. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
61. DR. MD.	61. DRUG	61. DRUG	145. MED. SURG. 146. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
62. DR. MD.	62. DRUG	62. DRUG	147. MED. SURG. 148. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
63. DR. MD.	63. DRUG	63. DRUG	149. MED. SURG. 150. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
64. DR. MD.	64. DRUG	64. DRUG	151. MED. SURG. 152. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
65. DR. MD.	65. DRUG	65. DRUG	153. MED. SURG. 154. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
66. DR. MD.	66. DRUG	66. DRUG	155. MED. SURG. 156. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
67. DR. MD.	67. DRUG	67. DRUG	157. MED. SURG. 158. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
68. DR. MD.	68. DRUG	68. DRUG	159. MED. SURG. 160. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
69. DR. MD.	69. DRUG	69. DRUG	161. MED. SURG. 162. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
70. DR. MD.	70. DRUG	70. DRUG	163. MED. SURG. 164. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
71. DR. MD.	71. DRUG	71. DRUG	165. MED. SURG. 166. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
72. DR. MD.	72. DRUG	72. DRUG	167. MED. SURG. 168. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
73. DR. MD.	73. DRUG	73. DRUG	169. MED. SURG. 170. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
74. DR. MD.	74. DRUG	74. DRUG	171. MED. SURG. 172. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
75. DR. MD.	75. DRUG	75. DRUG	173. MED. SURG. 174. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
76. DR. MD.	76. DRUG	76. DRUG	175. MED. SURG. 176. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
77. DR. MD.	77. DRUG	77. DRUG	177. MED. SURG. 178. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
78. DR. MD.	78. DRUG	78. DRUG	179. MED. SURG. 180. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
79. DR. MD.	79. DRUG	79. DRUG	181. MED. SURG. 182. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
80. DR. MD.	80. DRUG	80. DRUG	183. MED. SURG. 184. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
81. DR. MD.	81. DRUG	81. DRUG	185. MED. SURG. 186. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
82. DR. MD.	82. DRUG	82. DRUG	187. MED. SURG. 188. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
83. DR. MD.	83. DRUG	83. DRUG	189. MED. SURG. 190. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
84. DR. MD.	84. DRUG	84. DRUG	191. MED. SURG. 192. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
85. DR. MD.	85. DRUG	85. DRUG	193. MED. SURG. 194. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
86. DR. MD.	86. DRUG	86. DRUG	195. MED. SURG. 196. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
87. DR. MD.	87. DRUG	87. DRUG	197. MED. SURG. 198. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
88. DR. MD.	88. DRUG	88. DRUG	199. MED. SURG. 200. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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92. DR. MD.	92. DRUG	92. DRUG	207. MED. SURG. 208. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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102. DR. MD.	102. DRUG	102. DRUG	227. MED. SURG. 228. DENT. CAT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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system. These two clinics seemed to lend themselves to a process of standardization and it was felt that this environment would be conducive to a study of the program.

The two clinics occupied a combined space of approximately 8,600 square feet. A single chief of service ran the operation, advised and assisted by a nursing branch as well as one specific administrative office within the Outpatient Department. The two clinics utilized nearly identical appointment schedules (routine and acute appointment mix) and performed phone triage functions. Vital signs were taken on all patients arriving for scheduled appointments. Walk-in service was generally not available. However, it was anticipated that prescription refills would be handled on a walk-in basis concurrent with the implementation of the data card system.

Because of the process of screening for eligibility, the census input device (the patient data card) was initiated at the same point where patient IDs were screened. The decision to utilize a centralized patient check-in area was extremely important in considering the potential expansion of the pilot project. The implication was that the bulk of responsibility for the patient's repetitive entry into the ambulatory care system would be concentrated in the administrative branch. Project members agreed that this was desirable and added systems features to include:

- An ID check each time the patient arrived for services to confirm eligibility for care, age of the patient, and presence of the appropriate guardian in cases of under-legal-age patients.
- Activity related to providing the patient with his/her outpatient medical record *prior* to obtaining health services.
- Initiation of an appropriate medi-



Overview of information system elements derived from outpatient data card. The outermost circle represents the clinics using the system. The innermost circle identifies the "visit" as the basic unit of service within the outpatient setting.

cal record in the case of patients arriving who did not have a record on file.

- Classification of the outpatient or inpatient status of the particular person arriving for treatment in the outpatient areas.
- A centralized point for the tagging of records belonging to patients for whom services were provided on a reimbursable basis (i.e. foreign military, civilian humanitarian, etc.).

Justification of the staffing required to perform this check-in function was based on the obligation to provide care only to eligible beneficiaries and provide command compliance with the medico-legal

aspects involved in the delivery of outpatient care (i.e. age, custody, and documentation).

The concept of a centralized check-in area took advantage of standardization where it was medically appropriate. In this setting the objective was to provide each patient with a data card which represented authorized entry to the system. This same data card would be the input device to the computer which would compile the information in whatever formats were required. Additional information entries would enable the following to be evaluated:

- The residence zip code of the person seeking medical care (to

determine level of activity within the catchment area).

- Time of patient arrival vice appointment time or, simply, time of arrival when walk-in entry was appropriate.
- The percentage of total patients treated in the emergency room that were considered by the practitioner to require emergency services.
- The percentage of total outpatient clinical services scheduled through the central appointments branch of the Outpatient Department.

Inservice and Implementation

Having determined the information requirements, attention turned to the design of the patient data card. The card was presented to various clinical and administrative personnel to evaluate the ease of understanding. It was an apparent success. Many responded with "that certainly seems easy."

The project team assembled the elements of the audit trail at this time, constructed edit programs, and presented the data card system to all levels of involved personnel. During the following inservice sessions, comments and concerns were actively solicited from the staff and carried back to the project team for discussion and evaluation. The team then completed the final card design and systems flow diagrams. Training sessions were held with the Project Manager as was necessary to guarantee a thorough understanding of the mechanics of the new system.

The data card project formally began in the family practice and primary care clinics in April 1977. It was initially run alongside the "log-in" system to allow for a count comparison. For the next 12 months the project was subjected to frequent critique sessions to identify problems or areas that had been overlooked in the design phase. The acceptance level of the staff was

very positive and there was considerable interest displayed in identifying previously uncounted workload. The patient population showed initial skepticism but negative comments decreased as the staff gained experience in handling the new card.

The pilot study went extremely well and the project was recommended for permanent program status. The objective was to make it the single outpatient services reporting mechanism for the entire command.

Prior to expanding the system to the remainder of the hospital-based outpatient clinics, recommendations were made to improve the physical plant in the medical records area to allow for direct access to service windows. Construction of these windows delayed the system expansion by 90 days. During this time the formal clinic training manuals were prepared and disseminated. Numerous staff inservice sessions were conducted for those persons involved in the program. Areas with special requirements (i.e. optometry, ophthalmology) were again reviewed for applicability of the program.

The conversion to the total system occurred on 1 Feb 1979 in conjunction with the newly designed shift in patient traffic flow. The Project Manager identified a 90-day training phase during which time any changes to standard operating procedures would be carefully scrutinized to determine actual "need to change" versus "reaction changes" which accompany any systems conversion such as this one. A good portion of the training phase was spent in troubleshooting activities. Particular attention was paid to the quality of the edit programs as they received extensive use on a daily basis.

Since the beginning of the study on the outpatient services reporting

system, the following has occurred. Within that period the pilot program was conducted and permanent program status approved. Total conversion to the data card concept will be complete with the addition of the NRMC Memphis branch clinic to the system. What remains is formalization of the following areas:

- Program costs projected on a quarterly/annual basis.
- Recommended manpower levels to allow for the ongoing operation of this system.
- Delineation of the organizational branch charged with responsibility for the management of this program and with all staff teaching associated with its operation.
- Recommended schedules for program evaluation and updating or modification.

In summary, the existence of an accurate tool for reporting units of service in the military outpatient setting seems a foregone fact. But even a surface study of the reporting system that exists in many of our ambulatory care settings reveals numerous inconsistencies and too little understanding of the importance and implications associated with accurate reporting methods.

The patient data card program developed and implemented at NRMC Memphis is a "customized" one designed to meet the needs of a specific setting. But because of the fairly wide range of outpatient clinics which exist at this facility, it should be possible to evaluate this system for possible implementation at other sites. For persons desiring more information about the program, including the specific data processing programs, copies of the "Outpatient Units of Service Program" are available from the Director of Administrative Services, NRMC Memphis, Millington, Tenn. 38054.

Heroic Rescue at Midway Island

While the main islands in the Hawaiian chain were being brutally battered by high winds and rain in early January little thought was given to what was happening elsewhere around us.

But on the western most island in the Hawaiian chain, tiny, remote Midway Island, a life and death struggle was unfolding which was foremost in the minds of the island's inhabitants.

The remote island is normally docile and mostly inhabited by the infamous, clumsy "Gooney Bird," and a handful of human beings who share the small and isolated life with the birds. Midway became the scene of an extraordinary set of events which began to unfold the afternoon of Wednesday, January 9th.

At approximately 12:30 p.m., Navy Ocean Systems Technician Seaman Apprentice Paul Daniel Dubos was riding on the back of the station's fire department truck. This is something that goes on each day around the small naval facility, but this day was to be different.

While turning a corner, at a relatively slow speed, approximately 10 miles per hour, Dubos lost his grip on the safety rail and slipped off the turning truck and struck his head on the asphalt pavement.

At the same time, another set of events were unfolding around Midway Island, much the same as it was on the other islands in the area. A "killer storm," with its relentless winds and wildly heavy rains was descending upon the inhabitants of this small tropical island.

The fury of the storm, in the minds of the Midway Islanders, was layed aside as Dubos suddenly became the center of a frantic set of

events beginning with the attempt to move him from Midway Island to the Tripler Army Medical Center on Oahu.

During the normal routine, this would have been just another routine medical evacuation, but with the 50-knot wind storm, it was just the reverse.

It readily became apparent to the only medical officer on the island, LCDR Donald Bliss, who just happened to be on a two-week tour of duty from the Navy Regional Medical Center at Pearl Harbor, that he would have to be the one to treat Dubos, who was now in very critical condition, suffering from a massive skull fracture and had pressure building in his skull.

As the storm began to dump all its fury on Midway, Dr. Bliss, with the help of the station's dentist, Navy LT George McQueen, began to check into the availability of surgical instruments at the station.

Now in constant contact with the neurosurgeon at Tripler Hospital, the patient and the pitifully small amount of equipment were made ready. With only one size surgical drill at hand, no operating room or trained personnel who had done this type of operation, McQueen, with the help of the station's corpsmen, nurse, and chaplain, prepared Dubos for the operation.

Dr. Bliss, an internist, had never attempted such an operation but said, "I had to do it or he would have died right here."

The patient was unconscious but still moving around as they started the operation. "With no general anesthesia available, I used a local and had the corpsmen, nurse, and chaplain hold Dubos down."

With the instructions from the

doctor at Tripler Hospital, Dr. Bliss began to drill into the patient's skull to relieve the pressure.

With the pressure relieved and the patient still, but barely alive, the immediate matter at hand became the problem of moving the patient off the island for more specialized medical care.

The problem was compounded not only by the harsh weather but the lack of electricity on the small and only runway. The storm had taken its toll and made it apparently unusable.

Now the small air station was being battered by 40- to 50-knot cross winds and heavy sheets of rain which made it virtually impossible for any pilot to land an airplane in that weather.

The Air Force, with a medical evacuation team aboard a C-141 aircraft, attempted to fly to the rescue but was unable to because of prevailing weather conditions in the area.

Then the Coast Guard volunteered to try to reach Midway Island in a smaller C-130 cargo plane, which can land on shorter runways. The plane, from the Coast Guard Base at Barbers Point, Oahu, flown by Coast Guard LCDR Kyles Jones with an Air Force medical team aboard, then attempted the mission.

While this was going on, the patient, still in critical condition, was hanging on by a thin thread, constantly being treated by the station's medical team.

This attempt by the Coast Guard crew to get the gravely injured sailor to safety began, "what to many seemed like a scene out of the television series 'McHale's Navy,'" LCDR Jay R. "Ron"



A Coast Guard C-130 with an Air Force medical team aboard succeeded in evacuating Dubos from storm-battered Midway.

Wilson, the commanding officer of the Midway Naval Facility said.

"Being the only qualified pilot on the island, I immediately knew it would be impossible for anyone to land an aircraft on our small runway without the aid of landing lights and with violent rain and winds pelting the station.

"We, and when I say we, I mean more than 100 other persons on the station began to set up lights near the runway the best we could. This was coordinated with the help of the operations officer of the Naval Air Facility, LCDR John Watson.

"We used the skipper's sedan, my van, cars, trucks, Dempster dumpster trucks and even road graders as runway lights for the plane. I mean, we used everything that had headlights. I spent most of the time in the small control tower talking to the Coast Guard pilot, trying to explain what we were attempting to do, and keep the pilot apprised of our conditions here.

"It seems a bit crazy now, when I think about it, using vehicles for lights, but what could we do under the circumstances? We had to get Dubos off the island or he would surely die right here," Watson said.

When the aircraft was approximately 90 minutes away, Watson assembled all the people and set out their plan for lighting the runway.

When the plane was approximately 60 minutes out, all the vehicles were lined up alongside the smaller runway, motors running and handbrakes set. The men in the vehicles sat—waiting.

With the plane 30 minutes out, the men turned on the lights, checked the vehicles' handbrakes and "got the hell out of there."

It all seemed to work as the pilot set the huge airplane smoothly down on his first pass. The men then clambered aboard their vehicles and turned off the lights, so as not to blind the pilot as he turned his aircraft around on the runway.

In what seemed like a super-human chain of events only seen in Hollywood creations, the station's crewmembers abandoned their vehicles and proceeded with the job at hand.

In a short but agonizing 75 minutes, the crewmen refueled the plane, loaded the gravely ill Dubos, and got the plane back in the air. From the time of the accident on Wednesday afternoon, it wasn't until shortly after midnight Friday morning that the injured Dubos was airlifted off the tiny storm-battered island.

Wilson, reluctant to boast about his leadership and ingenuity during the life and death struggle, which began with an apparently innocent ride on a fire truck, had the utmost praise for Dr. Bliss, Dr. McQueen, and the staff of corpsmen assigned to Midway.

"We didn't do much; they saved the kid's life, not us."

The plane was now safely on its way to Oahu to begin another life-or-death struggle for young Dubos at Tripler Hospital. The naval facility's crewmen began the task of returning the vehicles and cleaning up after the storm.

Back at Barbers Point, the Coast Guard pilot LCDR Jones quipped about the Midway landing and the makeshift landing lights. "I made a routine one-pass landing because of the winds and rain. After landing and leaving the aircraft, I saw what I had landed on—tree stumps all over the place."

The "Gooneys" are still there on Midway, flying erratically around the island, oblivious to what happened to their human islanders during those 40 some-odd-hours trying to save the life of a shipmate.

Ed. note: Seaman Dubos responded to treatment at Tripler and is expected to make a complete recovery.

—Story by JOC Jay M. Davidson, USN

Changing Times Focus Attention on Medicine in the Workplace

Increasing use of industrial chemicals, additives, and new compounds underlines the importance of preventive medicine at the workplace as well as in the home

Susan V. Lawrence

In one sense, every primary care physician practices occupational medicine—whether he or she treats the ulcers of a company president sweating out a merger, the lead poisoning of a woman who makes stained glass windows, or the asbestosis of a man who has fixed brake linings for 35 years. In another sense, occupational medicine is a highly technical, specialized field requiring extensive knowledge of toxicology, epidemiology, and preventive and public health, as well as familiarity with a raft of Federal and State laws and regulations. Since the passage of the Occupational Safety and Health Act in 1970, these have mushroomed to the point where nearly every business in the country can expect to be affected by the standards and requirements concerning occupational health and safety.

The demand for expertise in occupational health is skyrocketing as

a result, and is likely to affect the practice of medicine in general as well as the long-ignored field of occupational medicine. Although most large industries have had in-house medical departments for years, many employing a number of physicians, industrial hygienists, occupational health nurses, and the like, the smaller companies that cannot afford these measures must now look elsewhere for help in complying with proliferating Federal regulations.

At the same time, the press and the public are more concerned than ever before about the hazards posed by a seemingly endless list of substances. All physicians can expect to hear more questions from their patients on the dangers of polychlorinated biphenyls and Kepone, vinyl chloride or lacquer, benzene, asbestos, heavy metals, fibers, and dusts of every description. The perils of these substances are recounted in front-page news stories and often the effects are found to extend far beyond the boundaries of the workplace—radon gas in the

basements of homes built on radioactive tailings in Colorado, the Kepone disaster in Hopewell, Va., the horrors at Love Canal and the Hooker Chemical and Plastics Company's toxic chemicals dumping sites, the recent railroad accidents in which carloads of toxic gases were released into the atmosphere. Carcinogenic and mutagenic are becoming common adjectives, while the Federal Government is laboriously setting up the apparatus to establish maximum exposure standards for everything from noise to beryllium, creating 30- and 40-year monitoring and surveillance programs, and developing ways to enforce new laws and regulations—the mission of the Occupational Safety and Health Administration (OSHA), and the beleaguered National Institute of Occupational Safety and Health (NIOSH).

Some of the changes in the field of occupational medicine were in evidence this year at the American Occupational Health Conference. Members of the American Occupational Medical Association—many

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of them full-time industry medical directors, and others part-time consultants or simply physicians with an interest in the area—heard from speakers who probably would not have been on the podium a few years back. Opening the session, for example, were two reporters—Lawrence K. Altman, a medical correspondent for the *New York Times* and himself a physician, and Gershon Fishbein, editor of the Washington-based *Occupational Safety and Health Letter* and the *Environmental Health Letter*.

At last year's opening session, speakers included Robert B. Hunter, M.D., chairman of the AMA's board of trustees, and Mitchell R. Zavon, M.D., corporate medical director of the Hooker Chemical and Plastics Corporation.

This year, Dr. Altman gave a brief history of the relationship between the press and medicine and urged his listeners to make greater efforts to explain what they do to the public at large. Mr. Fishbein spoke directly to industry when he pointed out that news stories about occupational safety and health issues often come from the government or such organizations as the Health Research Group (headed by Sidney Wolfe, M.D.) because industry spokesmen and physicians refuse to comment or provide their side of the story.

Yet another sign of changing times was the presence of Albin J. Gruhn, president of the California Labor Federation, AFL-CIO, on the program. AOMA president Robert Hockwald, FACP, told *Forum* this was the first time a representative from organized labor had accepted an invitation to address the organization. Some of Gruhn's comments did not sit well with some members of the audience—not surprisingly. For example: "There is

an attitude among too many present-day occupational physicians and other doctors who work part-time for a private employer to regard themselves as part of the industry team instead of as physicians dedicated to dealing with the needs of their patients, regardless of the effect on their employer." This assertion has been made before, and industry-based physicians deny it by citing AOMA's code of ethics which prohibits "allowing their medical judgment to be influenced by any conflict of interest." They also say adequate safeguards are built into their programs to protect workers' interests and protect confidentiality, while allowing physicians the inside view of industry they need to do their jobs.

Gruhn also called for immediate passage of comprehensive national health insurance, for changes that would allow all workers to be "provided with periodic checkups and full medical information from doctors of their own choosing, not just those on the company payrolls," as well as treatment from their own physicians for job-related illness, injury, or disability, and for acceptance of a new regulation that would give access to company medical records not only to workers, but also their "designated representatives," such as unions, as well as OSHA and NIOSH. Some in industry oppose this regulation because they think it would weaken doctor-patient relationships and pose administrative burdens on industry.

However, Gruhn also devoted much of his address to discussing the current need for more occupational physicians, more training opportunities, and earlier diagnosis and treatment of work-related illness—issues his audience was not likely to argue about.

The manpower situation is fast becoming critical. Gruhn pointed out that in the five-year period between 1970 and 1975, only 17 physicians finished occupational medicine residency programs and cited another survey indicating that about 70 percent of occupational physicians are over age 50, and fewer than 100 in the country are younger than 35.

The same points were made by Dr. Hockwald, who is the medical director of Pacific Telephone Co., and Duane Block, M.D., medical director of Ford Motor Co., during interviews with *Forum*. They observed that only about 800 physicians are Board-certified in occupational medicine, most of them employed by large corporations or affiliated with universities. Perhaps 4,000 or so physicians have some interest and expertise in the area—many of them internists, Dr. Hockwald says, although originally most of those who went into occupational medicine were surgeons called in to deal with on-the-job accidents.

The AOMA and the Academy of Occupational Medicine are working to improve communication with labor, with the public, and with the general medical community as well as expanding continuing education efforts for physicians in the field. Efforts are also underway to develop appropriate training programs for physicians who want to enter occupational medicine in mid-career.

Better communications with the "outside world" were also stressed by Paul Kotin, M.D., senior vice president for health, safety, and environment for the Johns-Manville Corp. Dr. Kotin, who has a good deal of first-hand experience with the asbestos controversy, said that common goals—safety and the protection of the health of the workers

—often get lost in controversies between industry, government, labor, and public interest groups.

"We all need to work together to determine what scientific data we have and what we need, and what we can determine from it. Once information has been gathered and categorized, we might be able to reach a consensus." Dr. Kotin proposed dealing with controversial issues by means of an arbitration panel system. Such panels would include "scientists, jurists, sociologists, economists, and ethicists" as "an effective mechanism for blending science and public policy." With a system of this type, Dr. Kotin said, "I think we could free ourselves from the restrictions imposed by reacting to crises."

An example of formal training opportunities in the area is the mini-residency program being offered by the University of Cincinnati Medical Center, through its Institute of Environmental Health, which includes a three-week course on the campus followed by short training sessions twice a year for the next two years. NIOSH also supports training in occupational medicine through its educational resource centers, of which 11 are operating at universities around the country. (Another will be established soon.) The centers are to be funded at an annual level of about \$1 million, and must offer training in occupational medicine, occupational health nursing, industrial hygiene and safety, and continuing education for professionals in the field. Such an effort is badly needed: only seven universities offered accredited two-year occupational medicine residency programs in 1977-1978, and fewer than 30 physicians are expected to graduate from the programs this year.

Clearly, the new programs will help, but not solve, the need for physician expertise in occupational

medicine and health. Anthony Robbins, M.D., director of NIOSH, says he hopes the programs will begin to attract young physicians—but he also hopes the general medical community will begin to get interested in the area. Records from many practicing physicians might be useful for doing case-control studies, he suggested.

Practicing physicians, in Dr. Robbins' view, have a key role in educating people about preventive health and the importance of early detection and disease prevention. They can educate their patients on a one-to-one basis. "Physicians are in a better position to do that than anyone—they do it all the time, telling their patients about the risks of smoking, hypertension, obesity . . ." Dr. Robbins said.

Dr. Hockwald told *Forum* that he hopes physicians in the community will become more aware of the resources of industrial medical departments. After all, large corporations offer extensive medical benefits and have many in-house education, prevention, and counseling programs. Diabetes and hypertension monitoring can be done in the workplace, sometimes with better results than when done outside, he pointed out. Industry medical departments have expertise in rehabilitation and counseling. And occupational medicine experts can do much to increase other physicians' awareness of occupational diseases and symptoms of exposure to hazardous substances or conditions.

All in all, as Linda Clever, M.D., points out, "A person's work is an important part of his or her health. Internists are oriented toward bodies, and the good ones know something about the soul. They ask about family, about where their patients live; they know that socioeconomic concerns affect health. But very few know anything at all about the workplace. Very few have

ever made a 'work call' or a 'company call.'"

For that reason, the physician may be unaware of how a person's work may be affecting his or her health, unaware of conditions that range from psychological stress to physical risks.* "Take, for example, bridge painters and ironworkers," said Dr. Clever, who heads the occupational medicine department at Pacific Medical Center in San Francisco—home, of course, of the Golden Gate Bridge. "I don't know whether an internist would necessarily think about the exposure to sand that comes from sandblasting off old paint, or the exposure to lead that comes from using lead-based paint. And I'll bet they don't know that these workers are concerned about possible suicides because they are afraid they might fall off the bridge trying to save them. This stress is a part of their job.

"The point is, if you don't know the territory, you don't know what questions to ask for full information," Dr. Clever added.

Despite substantial differences in position, it seems clear enough at this point that almost everyone—industry physicians, consultants, academics, labor representatives, public interest advocates, the press, and the public—agrees the time has come for all physicians to become more aware of the multitudinous hazards that exist in the workplace and the rest of the environment and to develop better ways of recognizing and dealing with them. After all, almost everyone works for a living.

*Such effects are documented in various government and union publications, for instance *Help for the Working Wounded*, by Thomas F. Mancuso, M.D., that was published in 1976 by the International Association of Machinists and Aerospace Workers.

NOTES & ANNOUNCEMENTS

NAVY GRADUATE MEDICAL EDUCATION

SAC XI has completed deliberations for over 630 applicants for Navy Graduate Medical Education. The statistical data will be published in a later issue of *U.S. Navy Medicine*.

All medical officers interested in applying for Navy Graduate Medical Education Training beginning July 1981 should begin their application process as soon as possible to prevent unnecessary delays in administrative procedures.

BUMEDINST 1520.10G dated May 1976 presents proper application procedure.

Those who have previously applied for training and have information on file at the Bureau of Medicine and Surgery may state this in their application. (Dean's letter, transcript, etc.) under item 3.

It is anticipated that all medical officers in operational assignments will receive BUMED Notice 1520 announcing Graduate Medical Education availability by 1 May 1980; however, if information is presently available to you, an early application is encouraged. The deadline for application will be 15 Aug 1980. Applications received after this date will be difficult to complete in time for the Specialty Advisory Committee which will convene in September 1980.

Information on Navy GME for 1981 may be obtained by writing to: Commanding Officer, Naval Health Sciences Education and Training Command, Attn: Code 4, National Naval Medical Center, Bethesda, Md. 20014. Telephone: Autovon 295-0648, Commercial (202) 295-0624.

AUDIOVISUALS FOR CONTACT-POINT COMMUNICATIONS

The Naval Health Sciences Education and Training Command (HSETC) has acquired two videotape productions from the Army Academy of Health Sciences (AHS) for use in contact-point interaction training:

Make Life a Little Easier (T519)—deals with the provider and consumer in the outpatient setting. Copies of this videotape have been distributed to all Navy Medical Department film libraries.

Just a Person in Your World (T518)—addresses a patient's perception of the total care received during a prolonged hospitalization. This 50-minute presentation is highly recommended for people involved in providing

inpatient health care services. A limited number of copies of this videotape is available on loan from: Audiovisual Resources Branch (Code 221), Naval Health Sciences Education and Training Command, National Naval Medical Center, Bethesda, Md. 20014. Telephone: Autovon 295-1226, Commercial (202) 295-1226.

OBSTETRICS AND GYNECOLOGY MEETING

The 29th annual Armed Forces Seminar on Obstetrics and Gynecology and the 19th annual meeting of the Armed Forces District of the American College of Obstetricians and Gynecologists will be held 5-10 Oct 1980 at the Sheraton Twin Towers Hotel, Orlando, Fla., in conjunction with the recently created Armed Forces District of the Nursing Association of the American College of Obstetricians and Gynecologists.

Postgraduate courses for physicians are planned in oncology/pathology, endocrinology/infertility, maternal fetal medicine, women in the work place, genetics, and audiovisual arts. Four postgraduate courses for nurse practitioners are slated in adolescent obstetrics, adolescent gynecology, current trends in obstetrics, and a neonatal update.

Nurse and Medical Corps officers are encouraged to submit scientific papers for presentation. Deadline dates for submission of papers will be 1 May 1980 for abstracts and 1 July 1980 for completed manuscripts.

For further information or addition to the mailing list, please call (804) 398-5074 or write: CAPT M. Labudovich, MC, USN, Program Chairman, AFD-ACOG '80, Chairman, Department of Ob-Gyn, Naval Regional Medical Center, Portsmouth, Va. 23708.

MASTERS DEGREE IN RADIobiOLOGY

In the January issue of *U.S. Navy Medicine*, the payback time for medical officers in an outservice program in Radiobiology was in error.

BUMEDINST 1520.7F requires a payback time of three years for the first year and one for one for each year or portion thereof after the first year for any out-service graduate education program. This obligation for graduate education applies regardless of Corps.

The two-year obligation is correct for physicians if the program in Radiobiology is taken as an integral part of a residency training program.

PROFESSIONAL

Scoliosis Screening— The Camp Lejeune Experience

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Reminding us of our obligations to preventive medicine and public health, Henry Sigerist, the noted medical historian, wrote in 1951, "We must always keep in mind that medicine is not a natural science, either pure or applied. Methods of science are used all the time in combating disease but medicine itself belongs much more to the realm of Social Sciences because the goal is social. Medicine, by promoting health and preventing illness, endeavors to keep individuals adjusted to their environment as useful and contented members of society."⁽¹⁾

In the orthopedic community, this "social responsibility" can be discharged with immense benefit through the early detection of potentially crippling deformities which, treated early, present minimal morbidity to the patient. Two common orthopedic conditions stand out among others as eminently treatable in their early stages, congenital dislocation of the hip and idiopathic scoliosis. Although we can now offer predictable surgical procedures in the treatment of the late sequelae of both conditions, an open reduction of a congenitally dislocated hip and a spinal fusion for idiopathic scoliosis must be viewed, in the epidemiological sense, as failures in preventive medicine.

In these days of fiscal constraints, however, public health measures are often defined in terms of cost effectiveness. In our own situation, with ever diminishing physician manpower, these same measures must also be time effective. The premise of this presentation is to suggest that scoliosis screening, which offers the potential for prevention of severe disability, can be accomplished with a very reasonable expenditure of physician time.

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Methodology and Findings

The Camp Lejeune dependent school system consists of high school, junior high, and five elementary schools which are separate and distinct from the civilian public school system. Spinal screening had never before been conducted in these schools. In accordance with scoliosis procedures recommended by the Scoliosis Research Society, (3) 1,275 children, grades 5 through 10 in four of the schools, were screened.

The program was begun by initially holding a one-hour slide presentation for the school nurses of each of the four schools detailing the nature of scoliosis and concentrating on the screening examination of children and demonstrating the physical findings in a volunteer patient with known scoliosis. Letters were then sent to parents of children in the involved grades explaining the screening program and asking them to respond if they objected to scoliosis screening in their child. School nurses then screened the children at their respective schools. Because of the large number of children (approximately 130) identified at the initial nurse's examination as having abnormalities, a physician came to the schools and rescreened those students. This was done in order to avoid unnecessary referral to the orthopedic clinic. As with other screening programs, as the nurses became more proficient with scoliosis detection, fewer patients were sent for secondary screening.

Only 23 (1.8 percent of the population sampled) children with clinical evidence of scoliosis suspected by the physician were referred to the orthopedic clinic where they were re-examined in more detail in the presence of their parents. Only children with anomalies suspected by the physician were referred for radiological evaluation, keeping the number of x-ray requests to a minimum.

Fourteen children (1.1 percent) were identified as having significant scoliosis (greater than five degrees). Curves smaller than five degrees were ascribed as posturing if no bony congenital anomalies were noted even if the physical examination was abnormal. A scoliosis incidence of 1.1 percent is close to the incidence described by Lonstein(2) of 1.2 percent of 3,076 children screened in the Minnesota schools in 1975-1976 and is also in the same range as that given by Wynn-Davies of 1.3 percent incidence of early onset scoliosis in 11,087 Edinburgh children in her classic study.(5) These figures suggest that probably every child with clinical evidence of scoliosis was detected and lend validity to the concept that scoliosis screening can be taught in a one-hour session to school nurses.

Table 1 lists physician-time expenditure involved in the screening. Only one physician was involved in the screening. Since 14 children were identified with significant curves and a total of nine hours of physician-time was expended on the program, the time cost to identify a given child with a significant scoliosis curve was 38.6 minutes.

Thirty-eight minutes per patient per year seems a justifiable time expenditure to identify the patient with early scoliosis when one considers that a group of 1,275 children can be effectively screened with the equivalent of two clinic days per year. The expenditure seems even more reasonable when one considers the time and cost

TABLE 1. Physician-Time Expenditure

Presentation to school nurses	1	hr
Secondary screening at four schools	1.25	hr
Telephone coordination	0.75	hr
Exam of 23 children (in-hospital)	4	hr
Discussion with parents of 14 children	2	hr
Total	9	hr

Physician time expended to identify a given child with significant scoliosis
38 min.

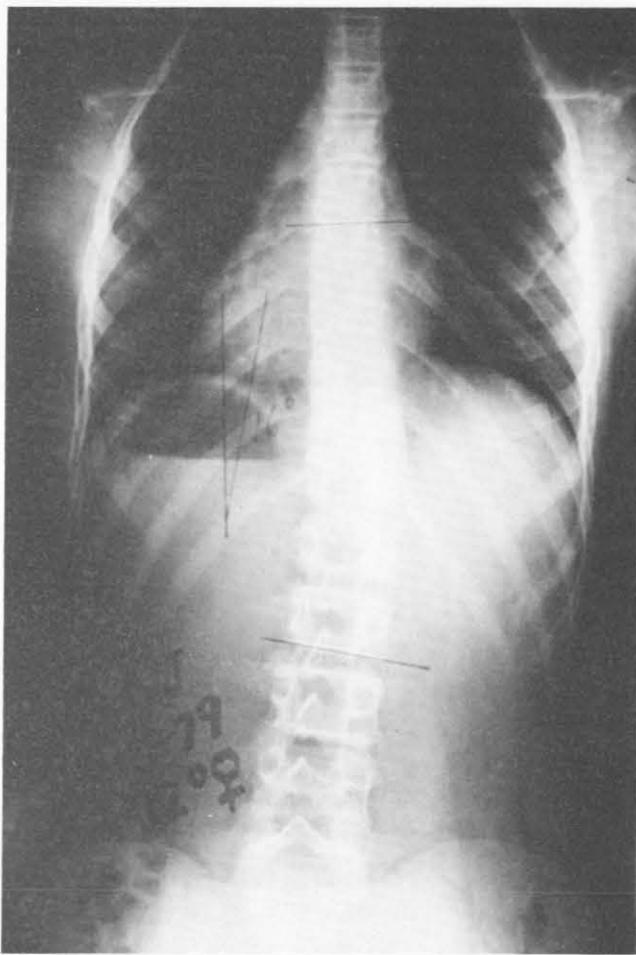
TABLE 2

Patient	Age	Sex	Curve (degrees)
1. D.L.	9	F	14
2. M.W.	10	F	10
3. P.P.	14	M	23
4. R.C.	10	M	10
5. P.B.	10	F	5
6. C.C.	12	F	17
7. S.D.	15	F	8
8. J.P.	16	F	7
9. L.S.	15	F	10
10. B.S.	11	F	6
11. M.T.	11	F	8
12. M.B.	11	F	9
13. S.S.	11	F	6
14. L.J.	12	F	16

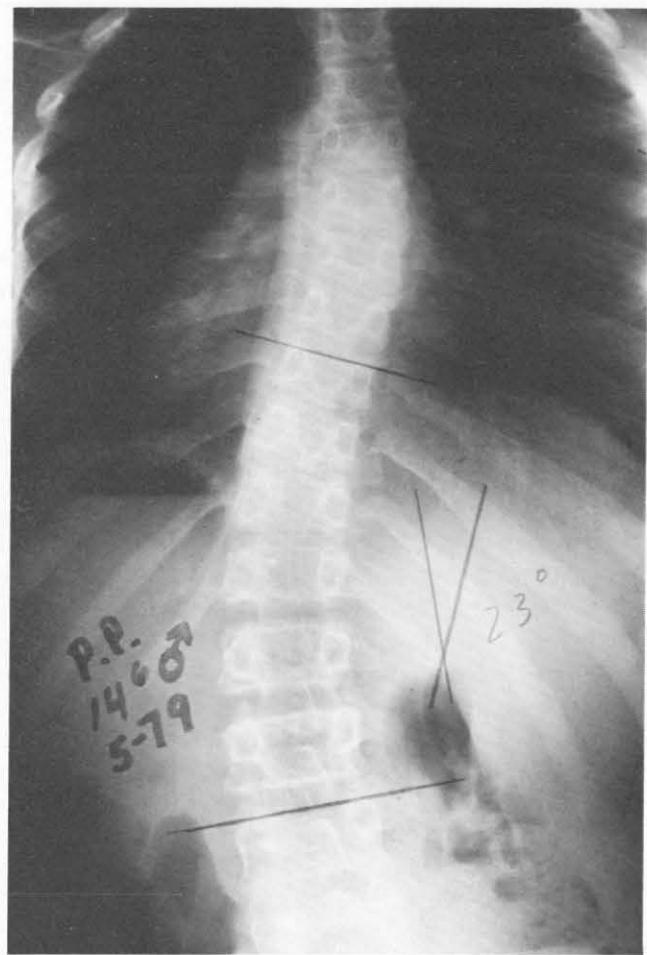
of scoliosis treatment which may progress to operative stage.

Screening a population of 1,275 children would be prohibitive in terms of physician-hours without school nurses and a social services coordinator for the school system. Although their time input was not recorded, this was not considered a limiting factor, since school nurses and a social services coordinator were already employed by the schools. The involvement of school nurses, nevertheless, was a *sine qua non*, and their help in setting appointments and in handling the logistics of the program was indispensable. A handbook by the Scoliosis Research Society(3) entitled *Spinal Screening Program Handbook* prepared with grant support from Merck, Sharp and Dohme was also invaluable as a guide in the initiation of a screening program.

Table 2 lists the cases detected by age, sex, and degree of curve. It can be seen that almost all the curves detected were small, with only one exceeding 20 degrees. The natural history of scoliosis curves of this



More advanced curve in a 12-year-old female without an iliac apophysis. Statistically, this curve is more apt to progress in girls than boys.



Most advanced curve detected in the program in a 14-and-one-half-year-old male. At this age, proper orthotic management will most likely arrest progression.

small magnitude is conjectural and only observation is generally indicated if the curve is idiopathic. The available data on these early curves suggest that the mild curves, which are often equally distributed among boys and girls, are often benign in boys, but may well progress in girls.⁽⁴⁾ In this program, 12 of the 14 curves detected were in girls and all warrant followup. There is hard epidemiological data, however, suggesting that 0.3 percent of all cases will require active treatment, involving bracing or surgery.⁽²⁾ The value of scoliosis screening is in the early identification of the patient with a potentially progressive curve at a time when only orthotic management is definitive and surgery generally avoidable. In patients with congenital curves, the detection of an associated anomaly is an added benefit.

Scoliosis screening, a proven effective method of detecting spinal anomalies in their early stages, makes sense, and can be conducted with a very reasonable

expenditure of physician's time. In naval regional medical centers such as ours, with an independent school system, screening can be effectively performed with minimal intrusion into an orthopedic clinic's schedule. The benefits of screening can still be made available to our health care recipients in an era of diminishing physician resources.

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NOTES

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Don't just tell them to quit...



Studies confirm that 9 out of 10 smokers know that smoking is a bad habit. And they'd like to quit. But they don't know how.

The large majority of smokers indicate they would quit if their doctors told them to.

And studies confirm that a large proportion of patients have quit upon advice from their doctors.

However, about two-thirds of smokers report that they've never received advice on quitting from their doctors. It could be their doctors don't want to push them. Or maybe quitting is given a lower priority than other health problems.

But we believe a lot of doctors don't tell their patients to quit smoking for one simple reason: they don't know how to answer the inevitable "how."

The National Cancer Institute has developed a free "Helping Smokers Quit" kit to help you answer the "how" and to help your patients quit the smoking habit. Materials for this kit were pretested with the cooperation of the Harris County (Texas) Medical Society and M.D. Anderson Hospital and Tumor Institute in Houston, Texas.

The National Cancer Institute will provide the "Helping Smokers Quit" kit free of charge to all physicians who want to participate in this important effort. Included in the kit are guidelines for physicians, a self-test to help smoking patients determine why they smoke, pamphlets with tips on quitting, and waiting room posters to introduce the subject. Each kit contains enough materials to help 50 of your smoking patients who want to quit.

Show them how to quit.

Don't delay! To receive the National Cancer Institute's free "Helping Smokers Quit" kit, fill out this order form and return it today.



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